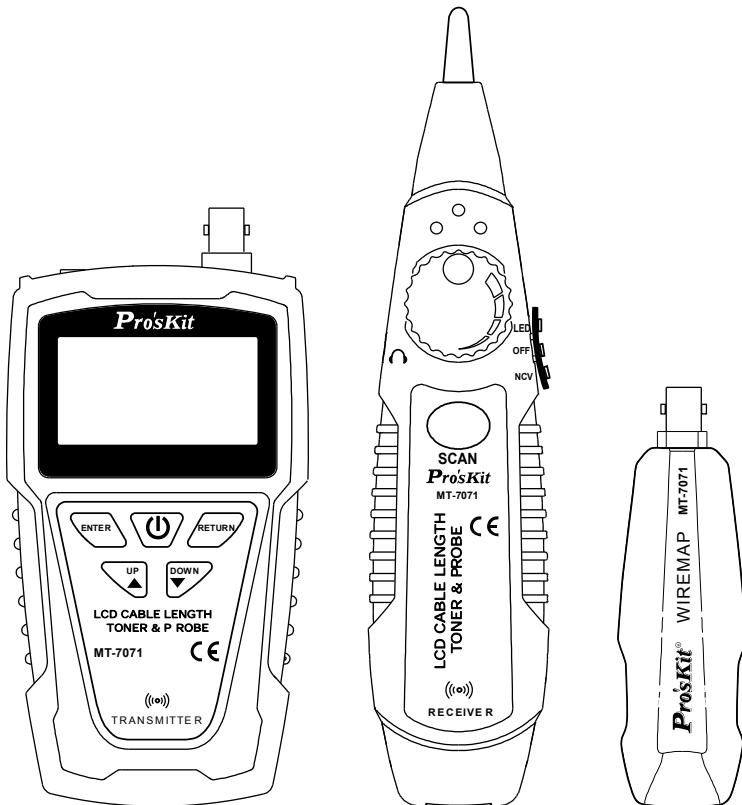


Pro'sKit[®]

LCD Cable Length Toner & Probe Kit

MT-7071

CE



User's Manual

1st Edition,

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Thank your for purchase **Pro'sKit** MT-7071 LCD Cable Length Toner & Probe Kit. The Toner and Probe set is used to measure cable length and quickly trace and identify cables or wires within a group and also check the operation of telephone lines. With proper use and care, this instrument will provide many years of reliable service.

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OVERVIEW

MT-7071 display is 128x64 dots graphic LCD, 50x27.5mm dimension, with LED backlight allows work even in dark places. Users can select display language in Chinese or English. It employs a cable capacitance method to measure cable length up to 1200M (4000ft) by locating the open point, accuracy is $\pm 3.0\%$ after length calibrating. User can select unit of length in meters, feet or yards.

MT-7071 can save 7 calibration parameters and recall the data to apply it at anytime. It lets you easily locate and verify the cable with the receiver, indicates by low or high signal on LCD or volume of sound to find the cable quickly.

MT-7071 also provides the wiring troubleshooting for continuity, shorts, opens and crossover on RJ45 LAN cable Cat 5 · 5e · 6 (UTP/STP) · RJ11/12 Telephone cable Cat. 3 (2/4/6 pin) and Coaxial cable & normal solid/stranded wire by alligator clips patch cord together with the remote unit. MT-7071 comes with complete accessories to satisfy different application requirements, including RJ45 patch cord · RJ11/12 patch cord · BNC patch cord and Alligator clips patch cord. Ideal for all installation and maintenance fields of telecommunication, networking, data communication, Audio/Video, cable TV, etc.

FEATURES

Cable Length Measurement up to 1200M

- Measuring cable length to opens up to 1200M, Calibration accuracy: $\pm 3.0\%$.
- Length measurement in feet, yards or meters.
- Cable length measurement without remote attached.

Calibration Parameters

- Can determine actual calibration parameters with known length of cable for cable length test.
- Allows setting 1-7 calibration parameters.

Wire Tracing up to 3KM

- The tone and probe kit lets you easily track wire directly in connection with live telecommunication equipment and router.

Cable Mapping & Status Indication

- Display the result of pin to pin cable mapping.
- Display cable status and troubleshoot wiring for continuity, short, open and crossover.

Max. Support 8 remote units

- For cable mapping on RJ45 Lan cable Cat 5 · 5e · 6 (UTP) · RJ11/12 Telephone cable Cat. 3 (2/4/6 pin) & BNC connector coaxial cable.

Non Contact Voltage Detection

- Tests AC voltage from 90 ~ 1000V, special design to make sure the power is off before testing for circuit protection.

Energy saving

- Selectable option automatically powers off after 15/30/60/120 min. of no operation.

ADVANCED FEATURES

- **MT-7071 Transmitter:** comes with 128×64 dots graphic LCD, 50×27.5mm dimension with LED backlight allows work even in dark places. User can select display language in Chinese or English.
- **MT-7071 Transmitter :** measures the cable length or locates the break point of RJ45 Lan cable 、RJ11/12 phone cable 、Coaxial cable up to 1200M (4000ft). The minimum testing length is 2meter (6.8 feet/2.2 yard). User can select unit of length in meters, feet or yards, accuracy is $\pm 3.0\%$ after length calibrating. It can save 7 calibration parameters and recall the data to apply it at anytime.
- **MT-7071 Transmitter:** Generates 580/1160 Hz audio signal with two tones. The maximum distance of Transmitter is ≥ 3 kilometers. Work with MT-7071 Receiver by volume adjustment feature can precisely find the break point in the range of 10~30cm. The MT-7071 Receiver with the indicated LEDs is more accurate for testing.
- **MT-7071 Transmitter with the Remote unit:** for cable mapping by LCD indication. The instrument can verify cable status for continuity, shorts, opens and crossover on RJ45 Lan cable and RJ11/12 telephone cable and test shielding/ unshielded wire. The maximum length that can be tested is 610 meters (2,000 feet/666 yards).
- **MT-7071 Transmitter with multi remote units :** It supports testing with multi remote units up to 8 (optional MT-7071U: ID#1~#8) for cable mapping and verifying continuity, shorts, opens and crossover of RJ45Lan cable or RJ11/12 phone cable, Coaxial cable. The maximum length could be tested is 610 meters (2,000 feet/666 yards). LCD can display each ID number to quickly locate and trace the cable that you want to test.
- **MT-7071 Transmitter :** With alligator clips patch cord for verifying the open and short status for single conductor or twin conductor cable and testing the shielded or unshielded wire.
- **MT-7071 Transmitter :** Circuit Protection design for low current $< 5\text{mA}$, AC 60V or DV48V, allows to test telecommunication equipments and routers in live network, you don't need to turn off power.
- **MT-7071 Transmitter :** User can select 15, 30, 60 or 120 minutes setting the auto power off time and select the low battery indication function.
- **MT-7071 Receiver :** With Non Contact Voltage detection function which can detect AC voltage from 90~1000V to avoid danger and damage by detecting the voltage in advance.
- **MT-7071 Receiver :** With LED lighting and earphone jack allowing to test in noisy or dark environments.

PACKAGING

The MT-7071 comes with the accessories listed below. If any accessory is damaged or missing, contact the place of purchase immediately.

MT-7071 LCD Cable Length Tone and Probe Kit

- MT-7071 Transmitter.
- MT-7071 Receiver.
- MT-7071 Remote unit, max. support 8pcs (optional MT-7071U)
- RJ45 (8 pin) to RJ45 (8 pin) patch cords.
- RJ11 (6 pin) to RJ11 (6 pin) patch cords.
- RJ11 (6 pin) to alligator clips patch cord.
- Earbud.
- Storage bag & User's manual.

SPECIFICATIONS

MT-7071 Transmitter specifications	
Display	LCD 128×64 Dots (50×27.5mm), with white backlight
Compatible connectors	RJ45(8 pin) 、RJ11/12(6 pin) 、BNC connectors
Cable types tested	RJ45 Lan cable Cat 5 、5e 、6 (UTP/STP) 、RJ11/12 Telephone cable Cat 3 (2/4/6 pin) 、Coaxial cable & normal solid/stranded wire by alligator clips patch cord
Cable test modes	580/1160 Hz two-note tones for location and isolating cables, wire mapping for validate (detects wire continuity, shorts, opens, miswire (crossover) and open length tested.
Measurement technology	Cable capacitance method
Max. distance of open length	> 1,200 meter (4,000 feet/1,300 yard), approx
Min. distance of open length	2 meter (6.8 feet/ 2.2 yard)
Typical accuracy of open length	2~10 meter (6.8~33 feet/2.2~11yard) for reference 10~610 meter (33-2000 feet/ 11-666 yard.): ±5.0% 610~1,200 meter (2000~4000feet/ 666~1300 yard.) for reference
Calibration accuracy of open length	10~610 meter (33~2,000 feet/11~666 yard) ±3.0%, standard cable:10~50meter(33~164 feet/11~55 yard)
Resolution of open length	0.1 meter/ feet/ yard
Measurement rate	1~3 sec./time
Unit of open length	meters/ feet/ yards, selectable option
Calibrating parameters memory	1~7 sets, allowing rewrite by new calibrating parameters
Tone frequency	580/1160 Hz
Max. distance of transmission	≥ 3 km
Max. distance of cable map	610 meter (2,000 feet/666 yard)
Min. distance of cable map	Twisted Pair : 1Meter (3 feet/ 1yard), normal





	wire:1.25Meter (4feets/1.35yard)
Max. working current	≤ 65 mA
Max. signal voltage	8 Vp-p (Tone mode)· DC 3.3V/5mA (Cable mapping mode)
Tone mode	two-note tone
Function selection	5 Push button switch (POWER · ENTER · RETURN · UP · DOWN)
Language select	Chinese/ English
Continuity test	Yes (With alligator clips patch cord, display #3 & #4 short or open)
Cable map indication	LCD #1~#8
Shielded indication	LCD #G
Live telecommunication equipment test and router test	Yes
Voltage protection	Protection for low current < 5 mA. RJ45(8 pin) : AC 60V or DC 48V RJ11(3.4 pin) & BNC(2 pin) : AC 125V or DC 100V
Auto power off	15/30/60/120 min., selectable option
Low battery display	DC7.0±0.5V (LCD flashes)
Battery type	DC 9.0V (NEDA 1604/ 6F22 DC9V ×1pcs) Not included
Dimension (L×W×D)	138×80×35 mm
MT-7071 Receiver specifications	
Frequency	580/1160 Hz
The Max. working current	≤ 80 mA
Compatible connectors	RJ45(8 pin), only for RJ45 cable mapping
Function selection	3 Position mode switch (NCV · OFF · LED)
Earbud	1
Signal status indication	1 LED & Buzzer
NCV indication	1 LED (AC 90~1000V)
LED illumination	1 LED
Battery type	DC 9.0V (NEDA 1604/ 6F22 DC9V ×1pcs) Not included
Dimension (L×W×D)	198×45×33 mm
MT-7071 Remote unit specifications	
Remote unit	1 pcs, max. support to 8 pcs (optional MT-7071U)
Compatible connectors	RJ45(8 pin) · RJ11/12(6 pin) · BNC connectors
Dimension (L×W×D)	90×32×30mm

Transmitter drop test (Shock and Vibration) : 1 Meter
 Operating temperature : 0 ~ 50°C (32 ~ 122°F)
 Storage temperature : -10 ~ 60°C (14 ~ 140°F)
 Operating humidity : 20% - 75% RH
 Storage humidity : 10% - 90% RH
 Operating altitude : 3,000 meters
 Storage altitude : 10,000 meters

SAFETY INFORMATION

Table 1 describes the international electrical symbols used on the tester and in this manual.

Table 1. International Electrical Symbols

	<p>Warning : Risk of personal injury. See explanations in the manual.</p> <p>Caution : Risk of damage or destruction to equipment or software. See explanations in the manual.</p>
	<p>Warning : Risk of electric shock.</p>
	<p>Please keep an eye on the status or function of the equipment while operating.</p>
	<p>This equipment not for connection to public communications networks, such as active telephone systems.</p>

Warning

- Do not test with live wire having over 5mA, AC 60V/DC 48V for RJ-45 Lan cable test; Do not test with live wire having over 5mA, AC 125V/DC 100V for RJ11 (6 pin) telephone cable test or BNC (2pin) cable test; Do not connect with mains electricity to any jack of MT-7071, all of mains electricity is over 5mA.
- Never use the Transmitter, Receiver, or test leads if they are damaged. Inspect the cases and test leads for damage before use.
- Disconnect unused test leads and connectors from the Transmitter when testing telephone circuits.

- Never open the case except to change the battery; no user-serviceable parts are inside.
- Turn off the Transmitter or Receiver and disconnect all test leads before replacing the battery.
- Use only a 9V battery, properly installed in the case, to operate the Transmitter and Receiver.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

INSTRUCTION

MT-7071 Transmitter/Remote Unit :

1. **RJ45 (8 pin) connectors:** Used for cable mapping and verifying cable status of RJ45 (8 pin) LAN cable with remote unit; with tone generator for wire tracing; for measuring cable length to open without remote unit.



Caution! Do not plug in live wire that over 5mA, AC 60V /DC 48V to RJ45 (8 pin) jack.

2. **RJ11(6 pin) Connectors :** Used for cable mapping and verifying cable status of RJ11 (6P/6C/4C/2C) phone cable with remote unit; with tone generator for wire tracing; for measuring cable length to open without remote unit. Use alligator clip patch cord for cable mapping, cable length measuring and verifying cable status of single conductor cable or two conductor cable.









Caution! Do not plug in live wire having over 5mA, AC 125V/DC 100V to RJ11 (6 pin) jack.

3. **BNC Connectors :** Used for cable mapping and verifying cable status of BNC Coax cable with remote unite; with tone generator for wire tracing; for measuring cable length to open without remote unit. Use adaptor for testing RF cable (such as F 、 RCA 、 TNC 、 M connectors).



Caution! Do not plug in live wire having over 5mA, AC 125V/DC 100V to BNC (2pin) connector.

4. **LCD Display** : For indicating function and display test result.
5. **Battery low indicator:** When the battery is lower than DC 7.0V, LCD will show flash 「」 icon. Please replace battery.
6. 「」 **Function enter push button** : Press this button to enter the function.
7. 「」 **Function up push button** : Press this button to move up arrow cursor on LCD to choose function or increase 0.1 meters / feet / yards of calibration parameters.
8. 「」 **Power ON/OFF push button** : Press this button to power on, push again for power off.
9. 「」 **Function return push button** : Press this button to return to previous menu.
10. 「」 **Function down push button** : Press this button to move down arrow cursor on LCD to choose function or reduce 0.1 meters / feet / yards of calibration parameters.
11. **Battery cover.**

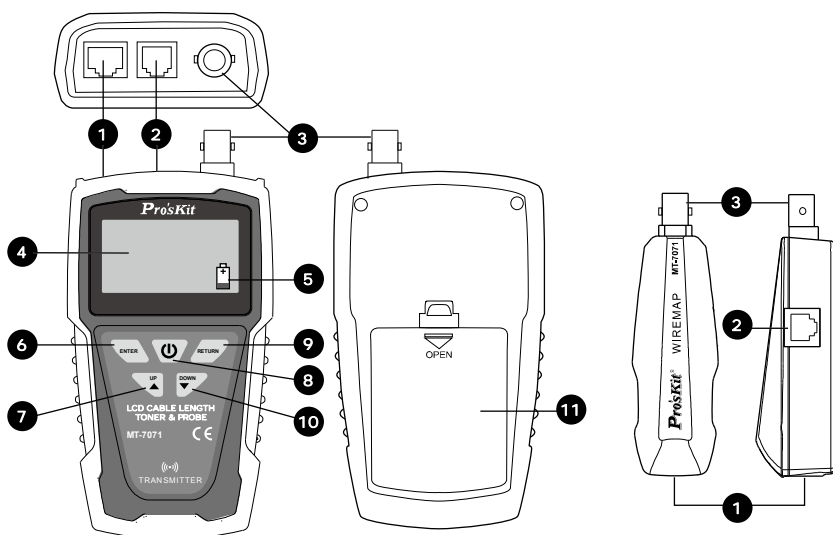





Figure 1 MT-7071 Transmitter / Remote Unit

MT-7071 Receiver :

1. **Probe** : Used for wire tracing and NCV detection.
2. **LED illumination** : Used for dark working environment.
3. **Power ON/OFF indicator** : The indicator will be lit up when the switch is at LED or NCV position and the receiver has started its functions. When the switch is at OFF position, the indicator will be lit up when pushing  button for wire tracing.
4. **NCV indicator** : When the probe is close to the tested object to detect the voltage, the indicator will light up if the object carried AC90~1000V. If the indicator did not light up, there is no voltage detected from the object or the AC voltage is less than 90V.
5. **Signal status indicator** : When doing cable mapping by probe, if the indication LEDs (1~8) more light up, the signal is stronger.
6. **Volume control** : By adjusting the volume from high to low to adjust the sensitivity of probe, move the position of receiver from 30 to 10cm to find out which cable you are tracing.
7. **Earphone jack Φ3.5mm** : Earphone can be used when the working area is noisy.
8. **Function selection : 3 Position mode switch (NCV 、 OFF 、 LED)**
9. **Speaker** : When “SCAN” feature is working, if the speaker is louder, the signal is stronger.
10.  **Locating and Isolating cables function push button** : When pushing the  button, the feature starts and the battery indicator light will be on.
11. **RJ45(8 pin) connectors** : Used Only for RJ45 (8 pin) Lan cable mapping. When used for RJ45 (8 pin) LAN cable mapping and wire troubleshooting, please connect the cable terminal to RJ45 (8 pin) jack of MT-7071 Transmitter, then start the function. (only for 1 to 1 test)



Caution! Do not plug in any live wire to the RJ45 (8 pin) jack.

12. Battery cover.

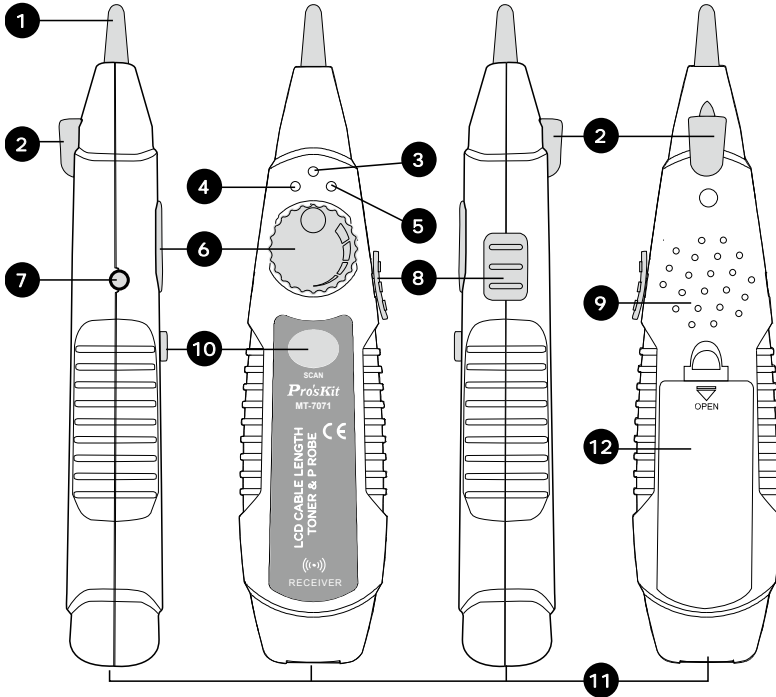


Figure 2 MT-7071 Receiver Diagram

OPERATION

FIRST USE GUIDE

If this is your first operation, please follow the instructions carefully as below before testing.

1. Please read user manual carefully and refer to page30: 「Operating process chart」 for learning operation instruction.
2. Please refer to page30: 「Operating process chart **A. (Lang :)**」 and follow the procedures to select language: (Chinese/English).
3. Please refer to page30: 「Operating process chart **I.(Auto off time)**」, follow the procedures to select 15/30/60/120 min for auto power off time setting.
4. Please refer to page30: 「Operating process chart **F.(Unit :)**」, follow the procedures to select unit : Meter / Feet /Yard.
5. If you would like to change the setting, please follow the above instruction to reset.

CABLE MAPPING



Caution!

- When performing cable mapping, select standard 1 to 1 or optional 1 to 8 remotes; both of receiver and remote unit cannot be used at the same time, otherwise, the LCD will show incorrect test result. Single conductor cable cannot be used for cable mapping.
- When performing cable mapping, do not connect the tested cable to any electric circuit、equipment or adapter, it will affect the test result.
- Measuring cable length: the length of Lan cable must be longer than 1m (3 Ft / 1 Yard), and the others must be longer than 1.25m (4 Ft / 1.35 Yard) 。 Maximum measuring distance is 610m (2,000Ft / 666 Yards).
- If short, open and crossover status occur at same time, “short” will show up in first priority, please make the wire troubleshooting step by step.

Cable mapping with standard remote unit



Caution!

- When performing cable mapping with standard remote unit, it will indicate shielded or unshielded, but will not indicate ID number of remote unit. The remote unit does not have buzzer alarm.
 - When performing cable mapping with standard remote unit for RJ11/RJ12 cable, 6P/6C、6P/4C、6P/2C, the test result and continuity status will be shown as figure 4-1.
1. Please connect tested cable to transmitter and remote unit properly as figure 3.
 2. Please refer to page30 「**Operating process chart B. Type :)**」 to select the corrected cable type (such as coaxial cable, telephone cable...).
 3. Start to performing cable mapping test as page30 「**Operating process chart C. Cable Mapping**」.
 4. The test result of 1 to 1 remote unit will display on LCD, please refer to figure 4-2.

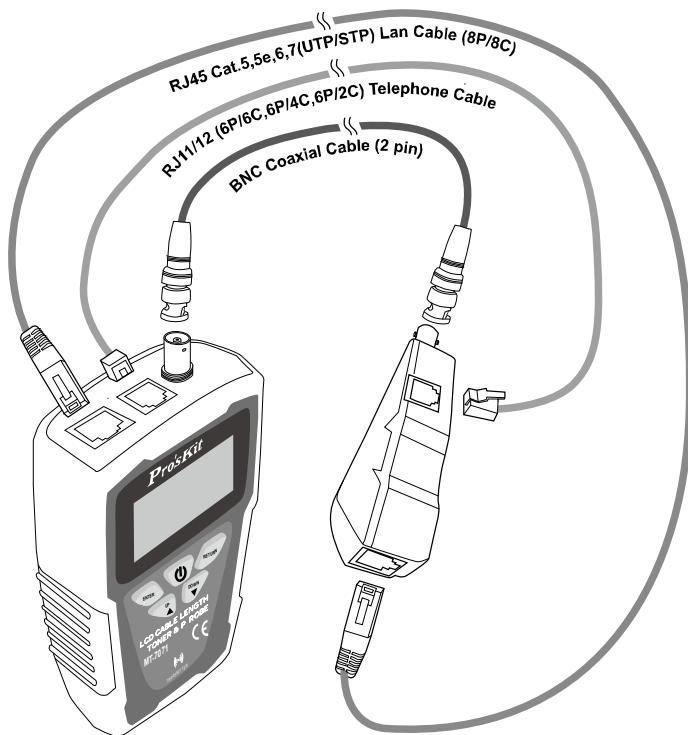


Figure 3 Validating Cable Maps

	Telephone Cable (6P/6C)	Telephone Cable (6P/4C)	Telephone Cable (6P/2C)
Good	Cable Map : Remote M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	Cable Map : Remote M: X 2 3 4 5 X R: X 2 3 4 5 X	Cable Map : Remote M: X X 3 4 X X R: X X 3 4 X X

Figure 4-1 Telephone Cable 6P/6C 、 6P/4C 、 6P/2C

Cable Mapping with standard remote unit


	RJ45 Lan Cable (8+1 pin) 1~8、G	Cat. 6 Lan Cable (8+1 pin) 1~8、G	Telephone Cable (6P/6C) 1~6	BNC Coaxial Cable (2 pin) 1、G
Good	Cable Map : Remote M: 1 2 3 4 5 6 7 8 G R: 1 2 3 4 5 6 7 8 G	Cable Map : Remote M: 1 2 3 4 5 6 7 8 G R: 1 2 3 4 5 6 7 8 G	Cable Map : Remote M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	Cable Map : Remote M: 1 G R: 1 G
3 Opens	Cable Map : Remote M: 1 2 X 4 5 6 7 8 G R: 1 2 X 4 5 6 7 8 G	Cable Map : Remote M: 1 2 X 4 5 6 7 8 G R: 1 2 X 4 5 6 7 8 G	Cable Map : Remote M: 1 2 X 4 5 6 R: 1 2 X 4 5 6	1 or G Opens  Cable open or too short!
3、4 Crossed pairs	Cable Map : Remote M: 1 2 3 4 X 5 6 7 8 G X R: 1 2 3 4 5 6 7 8 G	Cable Map : Remote M: 1 2 3 4 X 5 6 7 8 G X R: 1 2 3 4 5 6 7 8 G	Cable Map : Remote M: 1 2 3 4 X 5 6 X R: 1 2 3 4 X 5 6	
3、4 Crossed pairs & 5、6 Opens	Cable Map : Remote M: 1 2 3 4 X X 7 8 G X R: 1 2 3 4 X X 7 8 G	Cable Map : Remote M: 1 2 3 4 X X 7 8 G X R: 1 2 3 4 X X 7 8 G	Cable Map : Remote M: 1 2 3 4 X X X R: 1 2 3 4 X X	
3、4 Shorts	Short mapping: 1 2 3 4 5 6 7 8 G □	Short mapping: 1 2 3 4 5 6 7 8 G □	Short mapping: 1 2 3 4 5 6 □	Short mapping: 1 G □

Figure 4-2 the test result instruction for cable mapping with standard remote unit

Cable mapping with multi remotes (ID#1~#8)



Caution!

- When performing cable map with multi remotes (ID#1~#8), it will indicate ID number of remote unit, but not show up shielded or unshielded wire. The remote unit does not have buzzer alarm.
- When performing cable map with multi remotes (ID#1~#8), the test result of connector pins are the pairs defined by this standard as below:
Lan cable: #1pin & #2pin · #3pin & #6pin · #4pin & #5pin · #7pin & #8pin
Phone cable #1pin & #6pin · #2pin & #5pin · #3pin & #4pin.

In the test result of verifying cable status and wire troubleshooting with multi remotes (ID#1~#8), when Lan cable #1pin circuit is open, it will show #1pin & #2pin open. When the telephone cable #1pin circuit is open, the result will show #1pin & #6pin open. If users want to know more pin to pin detail of cable status, we recommend you change to perform cable mapping for 1 to 1 standard remote unit, please refer to chapter “**Cable mapping with standard remote unit**”.

- When performing 1 to 8 remote unit (ID#1~#8) cable mapping, if LCD displays two pairs #3pin & #6pin · #4pin & #5pin interaction flashing, it means cross over between #3pin & #6pin · #4pin & #5pin (not comply with EIA/TIA568A/B standard) or the patch cord is too short °.
 - Performing 1 to 8 remote unit (ID#1~#8) cable mapping for RJ11/RJ12 6P/6C, 6P/4C, 6P/2C telephone cable, the result instruction as shown as figure 5-1.
1. Please connect tested cable to transmitter and remote unit properly as shown in figure 3.
 2. Please refer to page30 「**Operating process chart B. Type :)**」 to select the corrected cable type (such as coaxial cable, telephone cable...).
 3. Start to perform cable mapping test as page30 「**Operating process chart C. Cable Mapping**」.
 4. The test result of cable map with multi remote units will display on LCD, please refer to figure 5-2.
 5. When performing cable mapping with multi remotes (ID#1~#8) for Lan cable, phone cable (6P6C), we use ID#6 as a example, if cable status is “good connection”, the remote unit will sound five of beeps; If the cable status is “open”, the remote unit will sound beeps continuity; if status is “short” no more beep sounded. The test result instruction, please refer to figure 5-2.



Caution!

- When performing 1 to 8 cable map (ID#1~#8 remote units), if any “short” in Lan cable exists, #7pin or #8pin, telephone cable #1pin or #6pin, telephone cable 6P/4C or 6P/2C or coax cable, it will not provide a reminder.

	Telephone Cable (6P/6C)	Telephone Cable (6P/4C)	Telephone Cable (6P/2C)
Good	Cable Map : Remot 6 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	Cable Map : Remot 6 M: X 2 3 4 5 X R: X 2 3 4 5 X	Cable Map : Remot 6 M: X X 3 4 X X R: X X 3 4 X X

Figure 5-1 Telephone Cable 6P/6C 、6P/4C 、6P/2C
Cable Mapping with multi remote units

Cable Map with multi remote units ID#1~ID#8


	RJ45 Lan Cable (8 pin) 1~8	Cat. 6 Lan Cable (8 pin) 1~8	Telephone Cable (6P/6C) 1~6	BNC Coaxial Cable (2 pin) 1、G
Good	Cable Map : Remot 6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	Cable Map : Remot 6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	Cable Map : Remot 6 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	Good Cable Map : Remot 6 M: 1 G R: 1 G
3 Opens	Cable Map : Remot 6 M: 1 2 X 4 5 X 7 8 R: 1 2 X 4 5 X 7 8	Cable Map : Remot 6 M: 1 2 X 4 5 X 7 8 R: 1 2 X 4 5 X 7 8	Cable Map : Remot 6 M: 1 2 X X 5 6 R: 1 2 X X 5 6	1 or G Opens  Cable open or too short!
3 ~ 4 Crossed pairs	Cable Map : Remot 6 M: 1 2 3 4 5 6 7 8 X R: 1 2 3 4 5 6 7 8	Cable Map : Remot 6 M: 1 2 3 4 5 6 7 8 X R: 1 2 3 4 5 6 7 8	Cable Map : Remot 6 M: 1 2 3 4 5 6 X R: 1 2 3 4 5 6	
3 ~ 4 Crossed pairs & 5 ~ 6 Opens	Cable Map : Remot 6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	Cable Map : Remot 6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	Cable Map : Remot 6 M: X X 3 4 X X X R: X X 3 4 X X	
3 ~ 4 Shorts	Short mapping: 1 2 3 4 5 6 7 8 □	Short mapping: 1 2 3 4 5 6 7 8 □	Short mapping: 1 2 3 4 5 6 □	Short Short mapping: 1 G □

Figure 5-2 the test result instruction for cable mapping
with multi remote unit (ID#1~#8)

MEASURE LENGTH, LENGTH CALIBRATION AND RECALL PARAMETER



Caution!

- Please do not connect to any equipment or terminator, when measuring cable length or performing length calibration, the cable should be in open status. The measured cable should be 2 conductors at least, it is not suit for single conductor wire. The cable length used for calibration parameter should be 10m to 50m (33~164 Ft /11~55 Yard).
- When performing cable length measurement, the cable should be in open status, it cannot apply for continuity 、 short or crossover testing cable. The length of cable should be 2m (6.8 Ft / 2.2 Yard) ◦ and the Maximum measuring distance is 1200m (4,000Ft/3000Yard).
- When performing cable length measurement or length calibration, in order to ensure the measuring accuracy, please operates under the ambient temperature $23\pm5^{\circ}\text{C}$, RH 20%~75%. Otherwise, it may cause big measurement error.
- Since there are many different cable specifications, brands and manufacturers in the market, for ensuring correct measurement, please set the cable calibration parameter as reference in advance. Before measuring cable length, please reload the calibration parameter you set and then measure the cable length. It will cause big measuring distance difference if without calibration parameter. MT-7071 default measuring cable type is UTP (Cat.5e) 、 category 6 (Cat 6) 、 phone cable (HYV4*1/0.4BC) and Coax cable(RG59).
- If user couldn't judge what type the measuring cable is, please use a high accuracy resistor meter to measure the wire resistance of same length cable and judge the cable type according comparing the resistance.
- When performing cable mapping, do not connect the tested cable to any electric circuit 、 equipment or adapter, it will affect the test result.
- When performing cable length measurement function, LAN cable is based on #3pin, telephone cable is based on #4pin, coax cable is based on G pin. If the test results of measuring cable length to opens are different, please refer to the length of based-pin. If the based-pin is open, please change the wiring sequence; make sure the wire of based-pin is good, then re-measures the cable length to opens.
- When performing cable length measurement function, if the test result is shown "short" on the LCD, please remove the fault, then re-measures the cable length to opens.

Length calibration

1. Prepare a 10m~50m (33~164Ft/ 11~55Yard) long standard cable to measure.
2. Connect MT-7071 and standard cable as figure 6.
3. Select unit if you want to change, please refer to page30 「Operating process chart **F.(Unit :)**」.
4. Select correct cable type as instruction (page30) of 「Operating process chart **B.(Type :)**」. Then start to measure length calibration function.
5. Performing length calibration, please refer to page30「Operating process chart **G.(Calibration)**」, follow the steps and save the measuring result as 「Calibration 1, Calibration2... Calibration 7」 after calibration.



ATTENTION : When calibration saved, you should bring up the calibration parameters and check the length is same as the standard cable, if different, please double check the wiring is properly connected, then measuring cable length again, save the result as calibration.

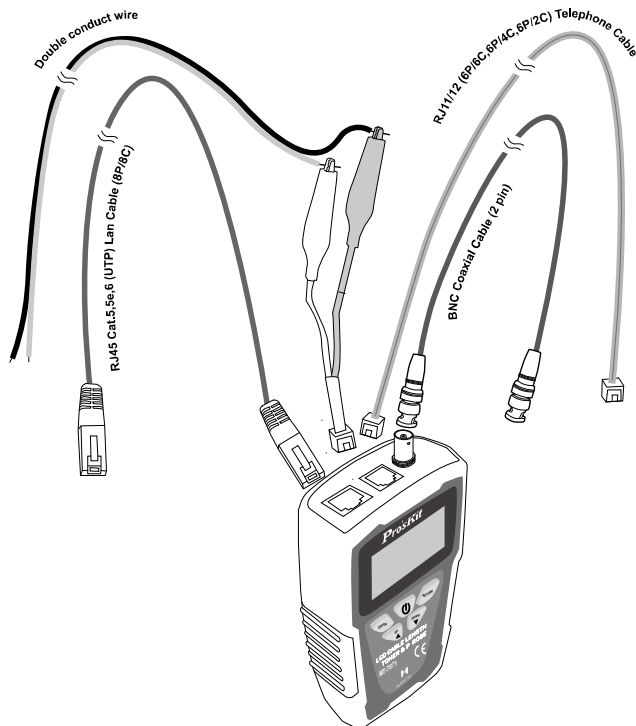


Figure 6 Cable Length Calibrations and Measurement

Calibration parameters Recall

Please refer to page30 「Operating process chart **H.(Load Data)**」 to select 「Calibration 1~ Calibration 7」 then load the data for testing.

Measure Cable length

1. Make sure the measuring cable is in open circuit.
2. Measure length after recall calibration parameters, follow steps as below.



Caution!

- Since there are many different cable specifications, brands and manufacturers in the market, for ensuring correct measurement, please set the cable calibration parameter as reference in advance. Before measuring cable length, please recall the calibration parameter you set and then measure cable length.
3. Connect MT-7071 and standard cable as figure 6.
 4. Select unit if you want to change, please refer to page30 「Operating process chart **F.(Unit :)**」.
 5. Select correct cable type as instruction of 「Operating process chart **B.(Type :)**」. Then start to measure length calibration function.
 6. Select 「Calibration 1~ Calibration 7」, **please** refer to page30「Operating process chart **H.(Load Data)**」, follow the step and apply data for testing.
 7. Measure length as page30 「Operating process chart **D.(Cable Length)**」.
 8. If all of measuring results are same distances between testing points to open points, please refer the instruction as figure 7

Test results for when all conductors are same length to opens. For example as below, all of measuring results are 168.5m.

RJ45 Lan Cable (8 pin)
8 pin same distances
to open

1	Open	168.5m
2	Open	168.5m
3	Open	168.5m
4	Open	168.5m

5	Open	168.5m
6	Open	168.5m
7	Open	168.5m
8	Open	168.5m

Cat.6 Lan Cable (8 pin)
8 pin same distances
to open

1	Open	168.5m
2	Open	168.5m
3	Open	168.5m
4	Open	168.5m

5	Open	168.5m
6	Open	168.5m
7	Open	168.5m
8	Open	168.5m

Telephone Cable (6 pin)
6 pin same distances
to open

1	Open	168.5m
2	Open	168.5m
3	Open	168.5m
4	Open	168.5m

5	Open	168.5m
6	Open	168.5m

BNC Coaxial Cable (2 pin)
2 pin same distances
to open

1	Open	168.5m
2	Open	168.5m

Double conductor wire(2 pin)
2 pin same distances
to open

1	Open	168.5m
2	Open	168.5m

Figure 7 Test result for measuring Cable length to opens are the same

LOCATING AND ISOLATING CABLES

Using MT-7071 LCD Cable Length Toner & Probe kit to locate and isolate cables by 580/1160 Hz analog, also trace twisted wires (UTP, STP, Cat 5e, Cat 6) and telephone line (Cat 3) and Coaxial cable. Use an alligator clip patch cord to connect RJ45 / RJ11 jack for testing general cable and various blocks.




Caution

- To locate and isolate cables using the 580/1160 Hz analog toning mode, please avoid interference sources like electronic devices with adapter, induction coil, and motors nearby. White noise from MT-7071 Receiver is normal when your transmitter is near any of the interference. If you cannot locate the signal on 2-conductor cables, the cable may be shorted. Please move away from the interference sources or turn off the electronic devices.
- To locate and trace cables which connected with PBX system or networking HUB, the signal of PBX system or HUB may cause a conflict with the signal of MT-7071 to disable the locate and trace function, please turn off the electronic devices and then test again.
- The position on the MT-7071 Transmitter and Receiver lets you use the Receiver to trace by an analog 580/1160 Hz tone. When using the Receiver to isolate the tone source in the cable bundle or at the patch panel, the signal might be interfered with or decreased and the signal will not pass through metal tubes.
- It is not necessary to touch the Receiver's tip to the cabling or patch panel when searching for the Transmitter's signal.
- Make sure the black alligator clip of the Transmitter is connecting to the ground before use.

Locating Individual Wire Pairs with the MT-7071 Analog Function

To locate cables, do the following steps (Figure 8) :

1. Please connect tested cable with MT-7071 properly, as figure 8. If you want to test single conductor / twin conductor cable , please select 「Tel」 cable type then plug the alligator clip patch cord into RJ11 jack.
2. Please refer to page30 「Operating process chart **B.(Type :)**」 , to select cable type that you want to test.
3. Please refer to page30「Operating process chart **E.**」, perform the wire tracing function to find out the target cable.
4. As figure 8 shows, slide the "switch" of receiver to OFF or LED position, then push  on receiver to operate cable tracing function. The tracing sound will be output from speaker. When put on earphone, there will be no sound from speaker, but from the earphone.
5. Use the Receiver to find the general location of the tone at a cable rack, patch panel, or behind a wall. In locating mode, the Receiver's LEDs light up in red from 1 to 8, then wrap back and light up from 1 to 8 again as the signal strength increases.
6. Adjust the Volume Control on the Receiver to locate the wire pairs from 10cm to 30cm.

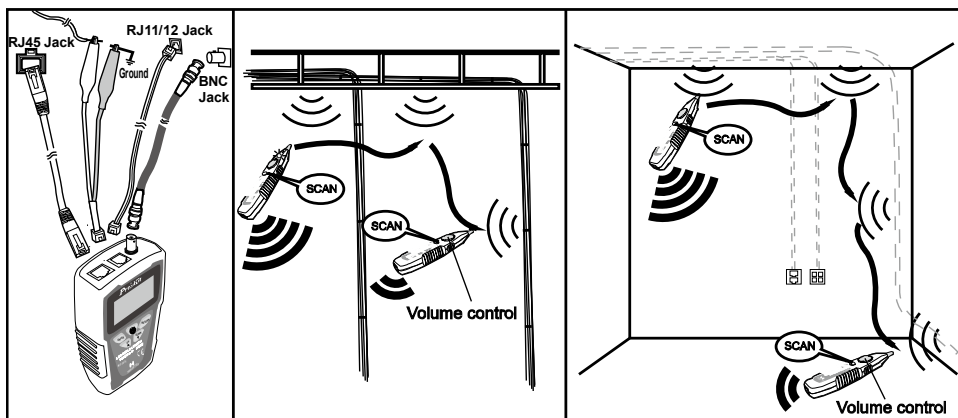


Figure 8 Locating cables

Isolating Cables

To isolate the tone source in the cable bundle or at the patch panel, do the steps as described in the previous section of “Locating Cables”.

7. Divide the wires into two parts, and separate the two bundle wire in 30~45 centimeter, use MT-7071 receiver to scan each part, which part get the louder buzzer sound and the LED light is more bright (Stronger signal), that part should include the target wire, do the same way to check until find out the target wire.
8. Adjust the volume control from high to low to enable looking for a more difficult to identify wire. Narrowing the length from 30 to 10 centimeters will help to more accurately identify the wire pairs.
9. Repeat the steps of 6 and 7 to isolate the bundled cables.



Caution

- If user could not distinguish the signal strength at each part, perhaps the cable status is short or open, perform Continuity Test (refer to figure 11) to check the cable status.

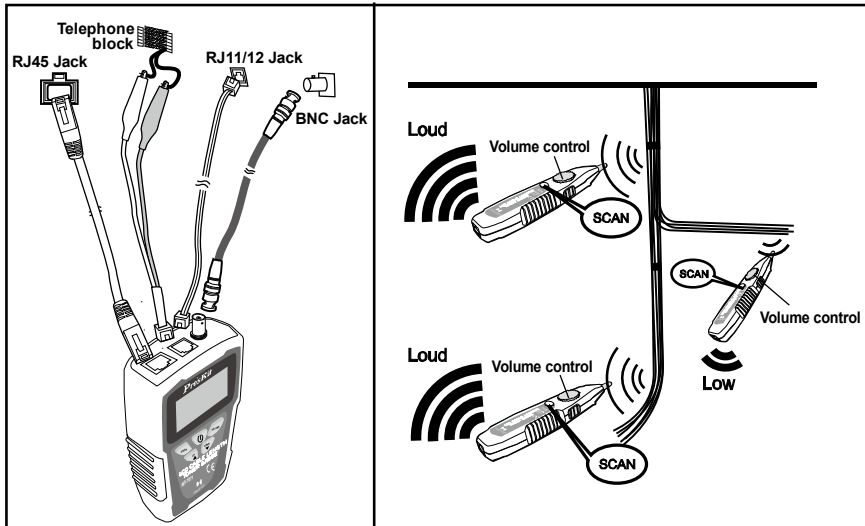


Figure 9 Isolating Cable

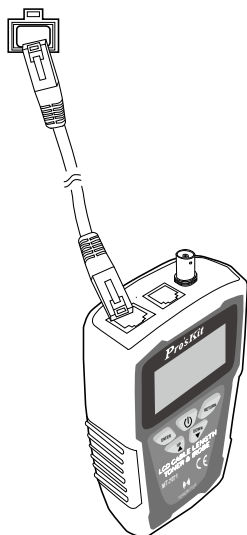
LIVE TELECOMMUNICATION EQUIPMENT AND ROUTER TEST



Caution !

- The feature can only be used for testing cable continuity and opens, cannot be used for cross over and short.
 - When test on live networking equipments or routers, due to some brands of HUB have the different circuit design, only can display 1・2・3・6 short。
1. According to Figure 10, connect MT-7071 transmitter and working router by RJ45 (8P/8C).
 2. Select cable type, please refer to page30 「Operating process chart **B.(Type :)**」
 3. Perform cable mapping, please refer to page30 「Operating process chart **C.(Cable Mapping)**」
 4. The test result will be shown as figure 10.
 5. If test result shows “Short mapping” with wires 1~8 and G that indicates wires 1~8 and G are continuity. If test result shows no wire is continuity that means wire is fault.

RJ45 Jack



Short mapping:

1 2 3 4 5 6 7 8 G

**RJ45 shielded Lan cable :
Continuity**

Short mapping:

1 2 3 4 5 6 7 8 G

**RJ45 shielded Lan cable :
Faule**

Short mapping:

1 2 3 4 5 6 7 8

**RJ45 unshielded Lan cable :
Continuity**

Short mapping:

1 2 3 4 5 6 7 8

**RJ45 unshielded Lan cable :
Faule**

Figure 10 Cable testing on working line

SHIELDED LAN CABLE & CONTINUITY TEST



DANGER : Before testing, please make sure the power of receiver is OFF.

If you want to confirm the cable is shielded or unshielded, or is continuity or open, please follow the step as below:

1. Refer to figure 11, plug alligator clip patch cord into RJ11 jack, and another terminal connect with tested cable.
2. Select cable type, please refer to page30 「Operating process chart **B.(Type :)**」 to select cable type (TEL)
3. Perform cable mapping, please follow the steps as page30 「Operating process chart **C.(Cable Mapping)**」 .
4. The test result is as figure 11.
5. If the tested result shows “Short mapping” with wire 3 and 4 that indicates wire status is continuity ($\text{resistance} < 500\Omega \pm 100\Omega$). If the tested result shows “Cable Open or too short!” indicates the wire is open circuit or poor connectivity or shielding bad ($\text{resistance} > 500\Omega \pm 100\Omega$).

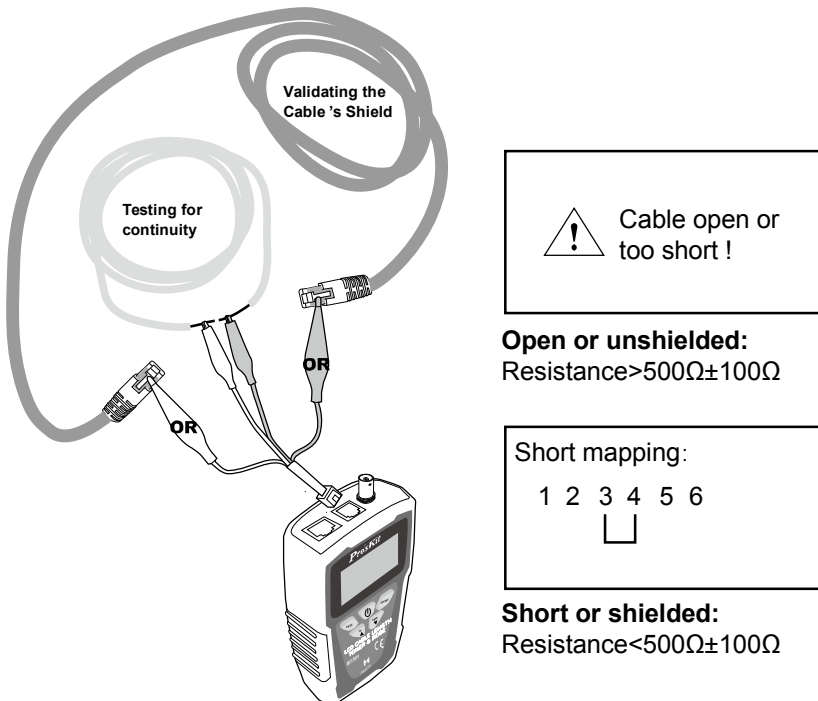


Figure 11 Shielded LAN Cable & Continuity Test

NCV (Non-Contact Voltage) TEST



Caution

- The feature can be used before locating, isolating, cable mapping to identify if the tested cable has AC voltage present. It cannot only help to ensure the safety of user and avoid possible electric shock or personal injury, but also protect the product from being damaged by AC power.
1. Per Figure 12, turn the switch to “NCV”, the function is started when the power indication is on.
 2. When doing the NCV testing by approaching the probe of MT-7071 receiver to the tested cable, the NCV indicator twinkled fast and the buzzer sounded means the tested objective has AC 90~1000V. If the indicator did not go on and no buzzer is sounded, it means the tested objective has AC power less than 90V or there is no AC power on it.

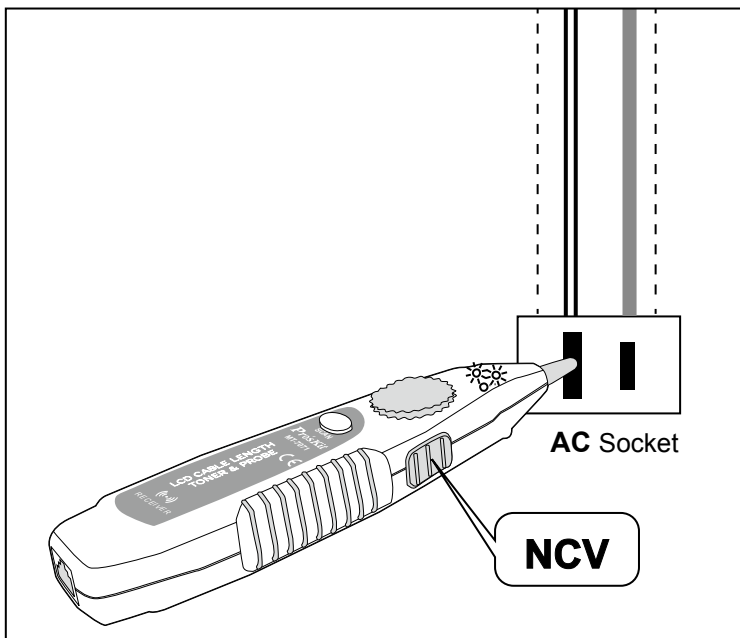


Figure 12 Non-Contact Voltage Testing

BATTERY LIFE AND REPLACEMENT



Caution


- To avoid unreliable test results, replace the battery as soon as the low battery indication appears.



Warning

- To avoid possible electric shock or personal injury, turn off the Transmitter or Receiver and disconnect all test leads before replacing the battery.

To avoid unreliable test results, replace the battery as soon as the low battery indication appears.

Battery Status: Low battery Icon 「」 is flashing, it indicates transmitter voltage is lower than DC 7.0 V, please replace the battery.

To replace the battery, do the following (Fig 13):

1. Turn off the Transmitter or Receiver and disconnect all test leads before replacing the battery.
2. Properly install in the case to power the Transmitter and Receiver.
3. Use only a 9V (6FF22) battery.

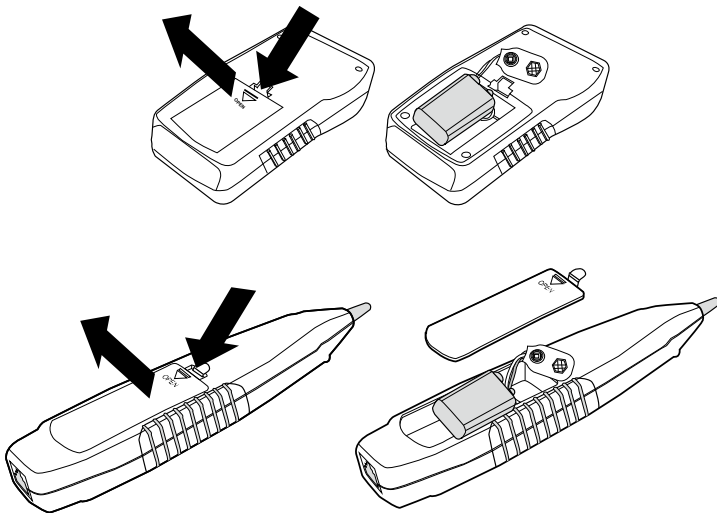
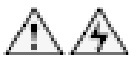


Figure 13 Replacement of the Battery

MAINTENANCE & TROUBLE SHOOTING



Warning

- Turn off the Transmitter or Receiver and disconnect all test leads before replacing the battery.



Caution

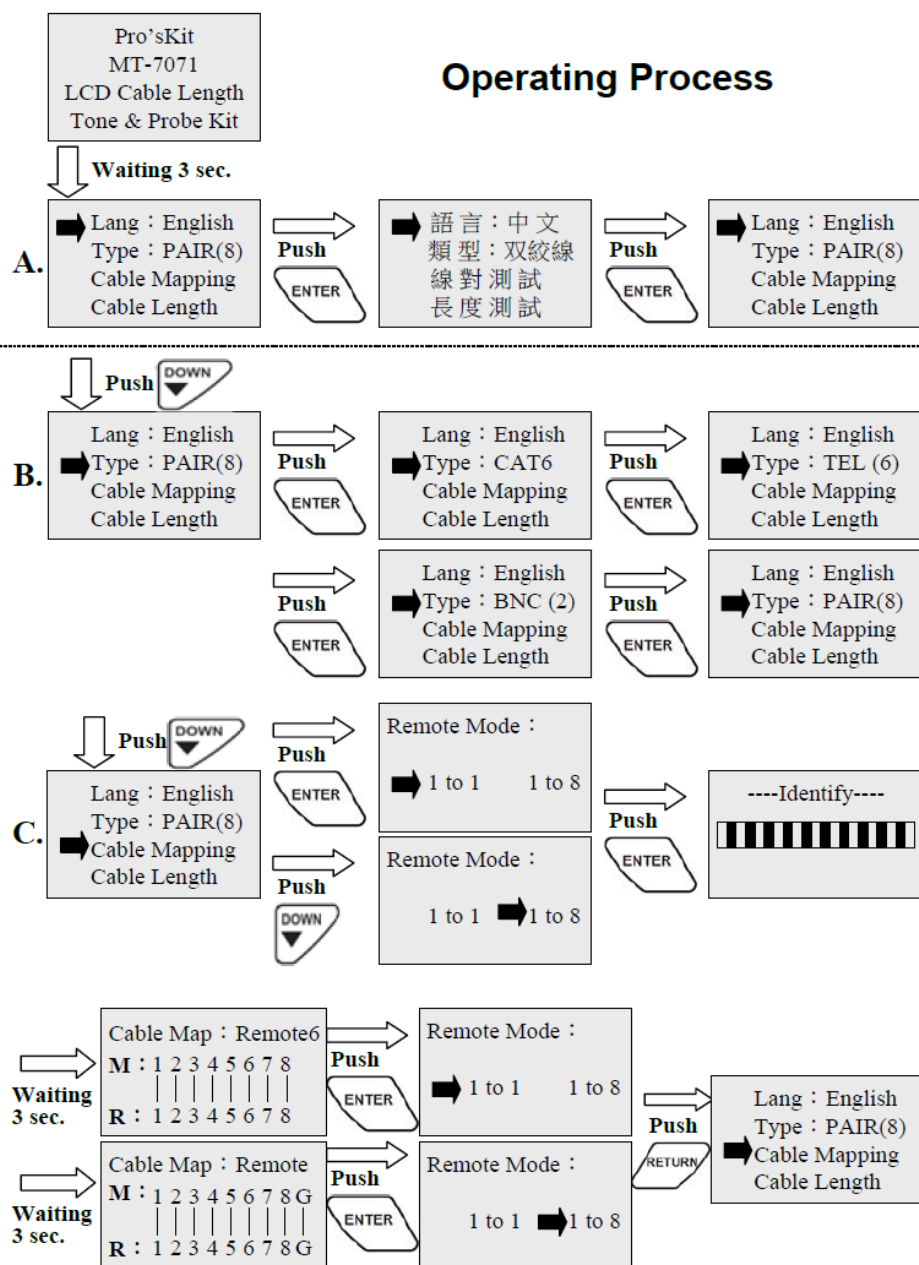
- To avoid damaging the case, do not use solvents or abrasive cleansers.

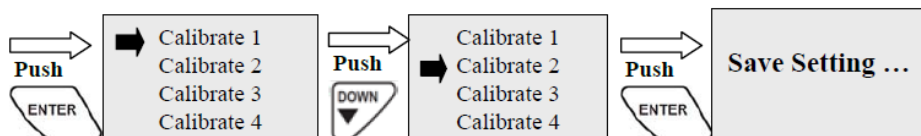
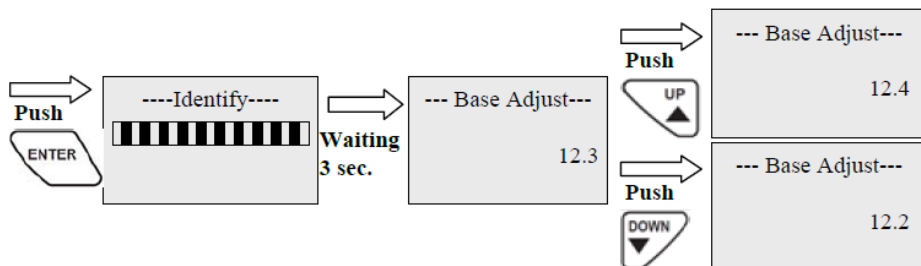
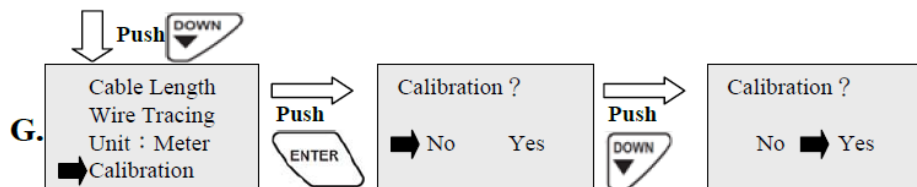
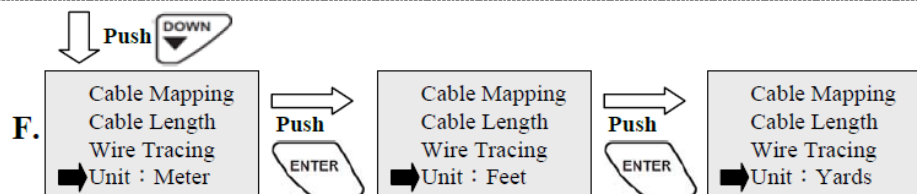
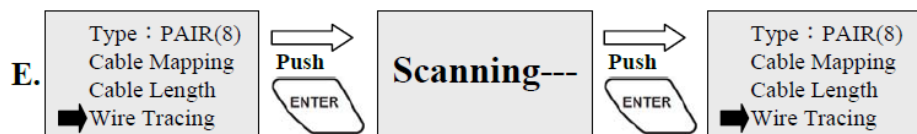
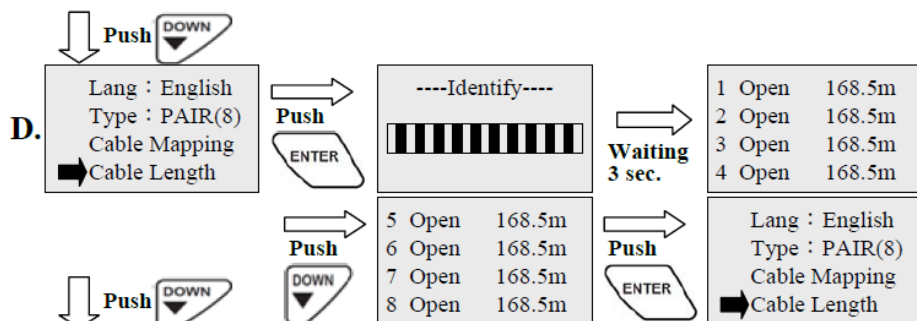
Clean the case with a soft cloth dampened with water or a mild soap solution.

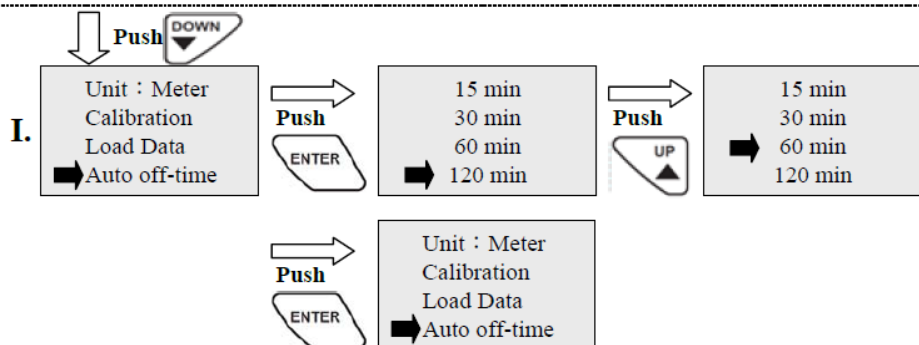
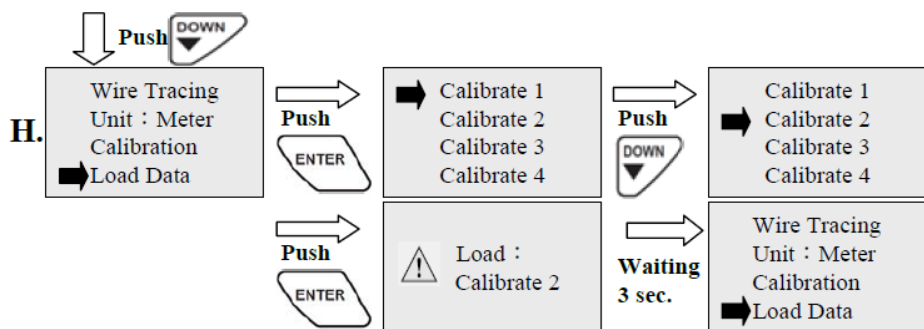
Trouble shooting

Possible Problems	Trouble shooting
The signal from Transmitter can not be detected by receiver	1. Shortage of battery power: Check the battery on both Transmitter and receiver. If the battery voltage is less than 7.0V, please replace new battery.
	2. Make sure the switch position on receiver is "OFF" or "LED". The SCAN function will not work if the switch is at "NCV" position.
	3. Device damaged: please return the product to the place you purchased the product for maintenance.
No signal received from Transmitter on Live telecommunication device testing	There might be conflict between the signal from telephone office and the signal from Transmitter. Please turn off the telephone exchange device.
Incorrect cable mapping result	LCD display broken: please return the product to the place you purchased the product for maintenance.
	Improper connection of networking or telephone cables: please reconnect the cables to RJ45 or RJ11 individual jacks.
Others	Device damaged: please return the product to the place you purchased the product for maintenance.

OPERATING PROCESS DIAGRAM







MT-7071 LCD 音頻線長查線器 使用說明書

感謝您購買和使用 **Pro'sKit MT-7071 LCD 音頻線長查線器**，使用本儀器前請仔細閱讀說明書，閱讀後請妥善保存，以備日後查閱。

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1・特點概述：

MT-7071 LCD音頻線長查線器，採用128×64點陣式液晶顯示器，尺寸50×27.5mm，具有白色背光，陰暗場所也能正常作業，並提供中文/英文的語言選擇介面。採用電容放電時間的測量技術，可以測量開路點長度，測量最大長度>1,200米 (4,000英尺/1,300碼)，長度單位可自由選擇：米/英尺/碼，校準後準確度可達±3.0%，校準後的參數可記憶7組，提供隨時調出使用。搭配接收器---能定位、分離、導通、查找電線。搭配遠端器---能使用戶確認並診斷電纜，佈線的導通、短路、斷路、錯接、交叉...等現象，並確認接線順序線號(線對表Cable map)。還提供視覺和音頻信號強度指示，使測試距離與準確度更容易精準掌握。MT-7071

LCD音頻線長查線器---提供了完整的配件，讓用戶可以輕易的檢測RJ45插座、RJ45連接線、RJ11/12插座、RJ11/12連接線、BNC插座、BNC連接線，並具有鱷魚夾連接線，可測試單股或雙股平行線、其它影音視聽線材、各種接線板。適用於電信、網路、數據通信、影音視聽、有線電視、室內外配線...等專業的裝配、查線、維修工程人員使用。

2．產品特點：

測量電纜線的長度可達 1200 米

- 測量電纜線的開路點長度可達 1200 米，校準後準確度 $\pm 3.0\%$ 。
- 具有 3 種長度測量單位：米、英尺、碼，提供選擇。
- 測量電纜線的開路點長度，無需連接遠端器。

校準參數記憶

- 用已知電纜線的長度，經過校準.儲存後，調出測量電纜線的開路長度，更加精準。
- 校準後的參數可記憶 7 組，提供隨時調出使用。

尋線長度達 3 公里

- LCD 音頻線長查線器 讓你輕鬆尋線，可直接與具有活電的電信設備和路由器連接。

線序/故障最大測試距離達 610 米

- 快速顯示各條線芯的線對表(Cable Map)，各條線芯同時對應顯示。
- 顯示各線序/故障的通路、短路、斷路、交叉的現象和測試屏蔽/非屏蔽線。

最多支援 8 個遠端器

- 可測試 RJ45 網路線、RJ11/12 電話線的導通、短路、斷路、錯接、交叉的現象，也可以測試同軸電纜線的導通、短路、斷路的現象，並可顯示每一個遠端器不同的 ID 號碼，快速定位、分離被測電纜。

非接觸電壓檢測

- 可測試 AC90~1000V 的電壓，特殊的設計，提醒你在進行測試之前，關閉電源.保護設備。

節能

- 可自由選擇當 15/30/60/120 分鐘無動作後，自動關機節能省電。

3．主要特點：

- **MT-7071 LCD 線長音頻產生器**：採用 128×64 點陣式液晶顯示器，尺寸 50×27.5mm，具有白色背光，陰暗場所也能正常作業，並提供中文/英文的語言選擇介面。
- **MT-7071 LCD 線長音頻產生器**：可測試 RJ45 網路線、RJ11/12 電話線、同軸電纜線的開路點長度，測量最大長度 > 1,200 米 (4,000 英尺/1,300 碼)，測量最小長度：2 米(6.8 英尺/2.2 碼)，長度單位可自由選擇：米/英尺/碼，典型準確度 $\pm 5.0\%$ ，校準後準確度可達 $\pm 3.0\%$ ，校準後的參數可記憶 7 組，提供隨時調出使用。

- **MT-7071 LCD 線長音頻產生器**：具有產生 580/1160 Hz 的音頻信號，提供雙音調的音色；音頻發射最大距離 ≥ 3 公里，配合 MT-7071 接收器的音量大小調整功能，可經由音量大小控制，準確控制查找斷線位置在 10~30cm 範圍內；MT-7071 接收器具有 LED 信號強度指示燈號，使測試距離與準確度更容易精準掌握。
- **MT-7071 LCD 線長音頻產生器**：配合 MT-7071 遠端器，可測試 RJ45 網路線、RJ11/12 電話線的導通、短路、斷路、錯接、交叉的現象和測試屏蔽/非屏蔽線，也可以測試同軸電纜線的導通、短路、斷路的現象，線序/故障測試最大長度 610 米(2,000 英尺/666 碼)。
- **MT-7071 LCD 線長音頻產生器**：配合額外選購的遠端器 ID#1~#8 (MT-7071U)，可測試 RJ45 網路線、RJ11/12 電話線的導通、短路、斷路、錯接、交叉的現象，也可以測試同軸電纜線的導通、短路、斷路的現象，線序/故障測試最大長度 610 米(2,000 英尺/666 碼)。並可顯示每一個遠端器不同的 ID 號碼，快速定位、分離被測電纜線。
- **MT-7071 LCD 線長音頻產生器**：搭配鱷魚夾轉接線，可以測試雙股平行線短路、開路的現象。也可以測試單股線的通路、開路和屏蔽線的測試。
- **MT-7071 LCD 線長/音頻產生器**：具有低電流 $< 5\text{mA}$ 的 AC 60V 或 DC 48V 保護，可在活電下測試電信設備和路由器，不必關閉電源。
- **MT-7071 LCD 線長音頻產生器**：可自由選擇 15/30/60/120 分鐘，無動作自動關機和電池低電壓指示功能。
- **MT-7071 接收器**：具有非接觸驗電(NCV) 交流 90~1000V，可預先測試設備線路的電壓，避免觸電危險或損壞設備。
- **MT-7071 接收器**：具有 LED 照明和耳機插座，提供給任何吵雜.光線不足的環境使用。

4. 包裝內容：

MT-7071 LCD音頻線長查線器的附件如下。若發現有東西損壞或缺少，請立即與購買處聯繫。

- MT-7071 LCD音頻線長產生器。
- MT-7071接收器。
- MT-7071遠端器1個，最多支援8個遠端器 (選購MT-7071U)。
- 耳機。
- RJ45(8 pin)至RJ45(8 pin)轉接線。
- RJ11(6 pin)至RJ11(6 pin)轉接線。
- RJ11(6 pin)對鱷魚夾線。
- 攜存袋。
- 使用手冊。

5・產品規格：

MT-7071 主機/發射器 規格	
顯示器	LCD 點陣式 128×64 點 (50×27.5mm), 白色背光
可測試連接埠	RJ45(8 pin)母座×1、RJ11/12(6 pin)母座×1、BNC 母座×1
適用電纜線	RJ45 網路線 Cat 5、5e、6、7 (UTP/STP)、RJ11/12 電話線 Cat 3 (2/4/6 pin)、同軸電纜線、一般電線(用鱷魚夾轉接線)
電纜測試模式	580/1160 Hz 雙音調定位、分離電纜線、線序/故障測試(偵測線纜的通路、短路、斷路、錯接、交叉)和開路長度測試
測量技術	電容放電時間
開路測量最大長度	> 1,200 米 (4,000 英尺/1,300 碼) 參考
開路測量最小長度	2 米 (6.8 英尺/2.2 碼)
典型開路準確度	2~10 米 (6.8~33 英尺/2.2~11 碼)：參考 10~610 米 (33~2000 英尺/11~666 碼)：±5.0% 610~1,200 米 (2000~4000 英尺/666~1300 碼)：參考
校準後開路準確度	10~610 米 (33~2,000 英尺/11~666 碼)：±3.0%，校準標準線：10~50 米 (33~164 英尺/11~55 碼)
解析度	0.1 米/英尺/碼
測量速率	1~3 秒/每次
長度單位選擇	米/英尺/碼
校準參數記憶	1~7 組，自由選擇 1~7 組改寫覆蓋
音頻發射頻率	580/1160 Hz
音頻最大測試距離	≥ 3 公里
線序/故障最大測試距離	610 米 (2,000 英尺/666 碼)
線序/故障最小測試距離	對絞線：1 米 (3 英尺/1 碼)、其餘線材：1.25 米 (4 英尺/1.35 碼)
最大工作電流	≤ 65 mA
輸出信號電壓	8.0Vp-p (音頻模式)；DC 3.3V/5mA (線序/故障模式)
音色	雙音調
功能選擇	5 個按鍵 (POWER 電源、ENTER 進入、RETURN 返回、UP 向上、DOWN 向下)
語言選擇	中文/英文
短路/導通測試	有 (用鱷魚夾轉接線，顯示#3、#4 短路、開路)
線序/故障指示	LCD #1~#8
網路線 屏蔽/非屏蔽指示	LCD #G

電信設備和路由器活電測試	有
電壓保護	提供低電流 < 5 mA 保護 RJ45(8 pin) : AC 60V 或 DC 48V RJ11(3.4 pin) 、BNC(2 pin) : AC 125V 或 DC 100V
自動關機	15/30/60/120 分鐘, 可自由選擇
電池低壓指示	DC 7.0 ± 0.5V (LCD 電池符號閃爍)
電池	DC 9.0V (NEDA 1604/ 6F22 DC9V ×1 個, 不含)
外觀尺寸 (長×寬×高)	138×80×35 mm
MT-7071 接收器 規格	
音頻接收頻率	580/1160 Hz
最大工作電流	≤80 mA
可測試連接埠	RJ45(8 pin)母座×1, 僅適用於 RJ45 線序/故障測試用
功能選擇	3 段滑動開關(非接觸驗電、關機、LED 照明)
耳機座	1 個
信號強弱指示	1 個 LED & 蜂鳴器
非接觸驗電(NCV)指示	1 個 LED (AC 90~1000V)
工作照明	1 個 LED
電池	DC 9.0V (NEDA 1604/ 6F22 DC9V ×1 個, 不含)
外觀尺寸 (長×寬×高)	198×45×33 mm
MT-7071 遠端器 規格	
遠端器	1 個, 最多支援 8 個 (選購 MT-7071U)
遠端器接頭形式	RJ45(8 pin)母座×1,RJ11/12(6 pin)母座×1,BNC 母座×1
遠端器尺寸	90×32×30mm

主機跌落測試：1 米。

工作溫度：0 ~ 50°C (32 ~ 122°F)

儲存溫度：-10 ~ 60°C (14 ~ 140°F)

工作濕度：20% - 75% 相對溼度





儲存濕度：10% - 90% 相對溼度

操作高度：3,000 米

儲存高度：10,000米

6 · 安全資訊：

表 1.描述測試儀上或本手冊中，所使用的國際電氣符號。

	警告：有人身傷害危險。請參閱手冊中的解釋。 小心：有損害或損壞裝置或軟體的危險。請參閱手冊中的解釋。
	警告：有觸電危險。
	注意：須注意操作時的狀態或功能。
	本設備不可連接至公用通信網路，如帶電的電話系統。



警告

- 使用MT-7071 LCD音頻線長查線器 不可以將超過5mA電流、超過AC 60V/DC 48V的活電的線路，插入RJ45(8 pin)插座中；不可以將超過5mA電流、超過AC 125V/DC 100V的活電的線路，插入RJ11(6 pin)和BNC(2pin)插座中。(一般市電的電流均超過5mA，不可以插入任何一個插座中！)
- 不得使用已破損的MT-7071 LCD音頻線長查線器測試導線。使用以前，請檢查機殼和測試導線是否有破損。
- 在測試電話電路時，將不使用的測試導線和連接器從MT-7071 LCD音頻線長查線器上斷開連接。
- 除非要更換電池，否則不得打開機殼；其中沒有任何用戶可維修的零件。
- 在更換電池以前，請關機！並斷開所有測試導線的連接。
- 僅使用9V電池，正確安裝在機殼內以提供電源。
- 如果不遵照指定方式使用本設備，則可能影響本產品提供的保護。

7 · MT-7071 LCD音頻線長產生器/遠端器 外觀圖：

- ①. **RJ45(8 pin)插座：**提供RJ45(8 pin)網路線的線序/故障、音頻尋線和開路長度測量用。當在RJ45(8 pin) 網路線的線序/故障測試時，需與MT-7071遠端器或接收器 的RJ45(8 pin)插座，共同搭配使用。



注意！在超過5mA電流、超過AC 60V/DC 48V的活電的線路，不可插入本插座中！

- ②. **RJ11(6 pin)插座：**提供RJ11(6P/6C/4C/2C)電話線的線序/故障、音頻尋線和開路長度測量用。當在RJ11/12(6/4/2 pin) 電話線的線序/故障測試時，需與MT-7071遠端器 插座，共同搭配使用。雙股平行線的測量，請使用鱷魚夾轉接線。單股線無法測試線序/故障和開路長度。









注意！在超過5mA電流、超過AC 125V/DC 100V的活電的線路，不可插入本插座中！

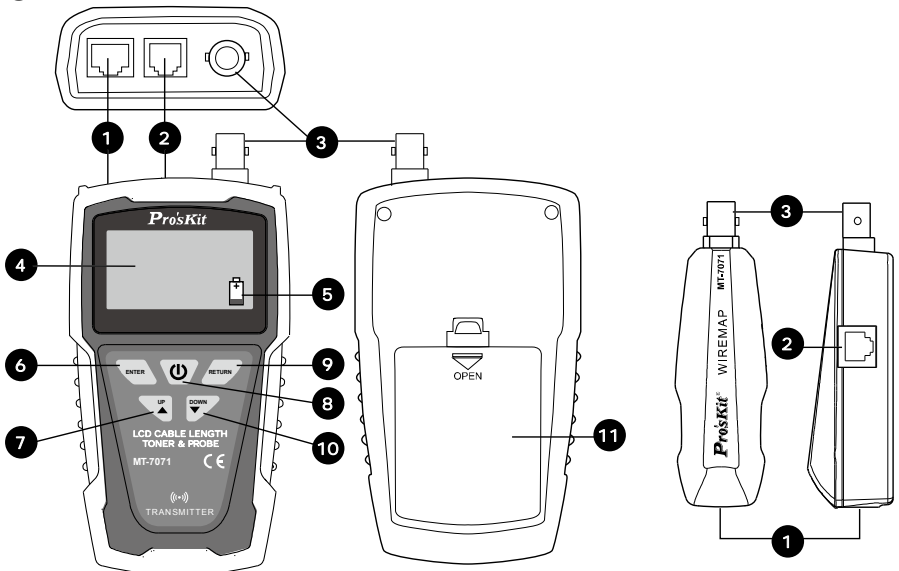
- ③. **BNC 插座：**提供BNC同軸電纜線的線序/故障、音頻尋線和開路長度測量

/故障測試時，需與MT-7071遠端器 插座，共同搭配使用。其他不同的RF接頭 (如.F、RCA、TNC、M...等接頭)，請用轉接頭轉接即可使用。



注意！在超過5mA電流、超過AC 125V/DC 100V的活電的線路，不可插入本插座中！

- ④. **LCD螢幕**：提供各項功能指示與測試結果。
- ⑤. **電池低電壓指示**：當LCD螢幕顯示此符號「」閃爍時，表示電池電壓低於7.0V左右，需要更換新電池。
- ⑥. 「」**功能進入鍵**：按此功能鍵後，代表確認進入箭頭游標所指示的功能。
- ⑦. 「」**向上鍵**：按此功能鍵後，箭頭游標向上移動或是校準參數增加0.1米/英尺/碼。
- ⑧. 「」**電源開/關鍵**：按下此鍵後，當LCD螢幕亮起時，表示電源開啟。再按一下此鍵時，當LCD螢幕熄滅後，表示電源關閉。
- ⑨. 「」**返回鍵**：按此功能鍵後，返回上一層功能選單。
- ⑩. 「」**向下鍵**：按此功能鍵後，箭頭游標向下移動或是校準參數減少0.1米/英尺/碼。
- ⑪. 電池蓋。



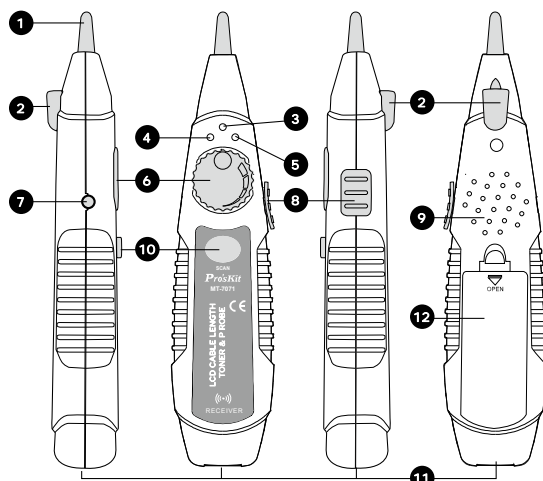
(圖一) MT-7071 LCD 音頻線長產生器/遠端器 外觀圖

8・MT-7071接收器 外觀圖：

- ①. 音頻信號探頭：「SCAN」尋線功能或非接觸驗電(NCV)測試功能的探頭。
- ②. LED工作照明燈：當工作環境光線不足時，可作為輔助照明使用。
- ③. 電源指示燈：當3段功能選擇開關，撥切至「LED」或「NCV」檔位時，指示燈亮起，表示「LED」或「NCV」測試的功能啟動。當3段功能選擇開關，撥切至「OFF」檔位時，按下「SCAN」尋線功能鍵時，指示燈亮起，表示尋線測試的功能啟動。
- ④. 非接觸驗電(NCV)指示燈：將音頻信號探頭靠近被測物，進行非接觸驗電(NCV)測試，當此指示燈快速閃爍時，代表被測物具有90~1000V交流電壓。當指示燈不亮時，代表被測物的交流電壓低於90V或是沒有交流電壓。
- ⑤. 信號強弱指示燈：將音頻信號探頭靠近被測物，進行尋線功能測試時，當此指示燈越亮，表示信號越強。
- ⑥. 音量旋扭：控制音量由大到小，則可以改變查找電線的靈敏度，將搜尋位置由30cm縮小到10cm以內，準確找到目標芯線的位置。
- ⑦. $\varnothing 3.5\text{mm}$ 耳機座：當工作環境噪音太大時，可插入耳機，方便尋線測試使用。
- ⑧. 3段功能選擇開關：3段滑動開關(非接觸驗電NCV、關機OFF、工作照明LED)
- ⑨. 喇叭：當尋線(SCAN)測試的功能啟動後，喇叭聲音越大，表示信號越強。
- ⑩. 「SCAN」尋線功能鍵：當按下此尋線功能鍵時，電源指示燈亮起，表示尋線測試的功能啟動。
- ⑪. RJ45(8 pin)插座：僅提供RJ45(8 pin)網路線的線序/故障測試的遠端器用(1對1模式),需與MT-7071 LCD音頻線長產生器 的RJ45(8 pin)插座，共同搭配使用。

⚠注意！任何具有活電的線路，不可插入本插座中！

- ⑫. 電池蓋。



(圖二) MT-7071 接收器 外觀圖

9．首次開始使用本產品：

1. 請先詳閱本說明書，和參閱「**18.操作流程圖**」，熟悉操作流程。
2. 再參閱「**18.操作流程圖 A.(語言：)**」，依照指示操作--選擇語言：中文/英文顯示。
3. 再參閱「**18.操作流程圖 I.(自動關機時間)**」，依照指示操作--選擇設定自動關機時間：15/30/60/120分鐘。
4. 再參閱「**18.操作流程圖 F.(單位：)**」，依照指示操作--選擇常用的長度單位：米/英呎/碼。
5. 未來如需改變，請參閱上述操作流程，依照指示操作，自由重新選擇。

10．線對表(Cable Map)測試：



注意：

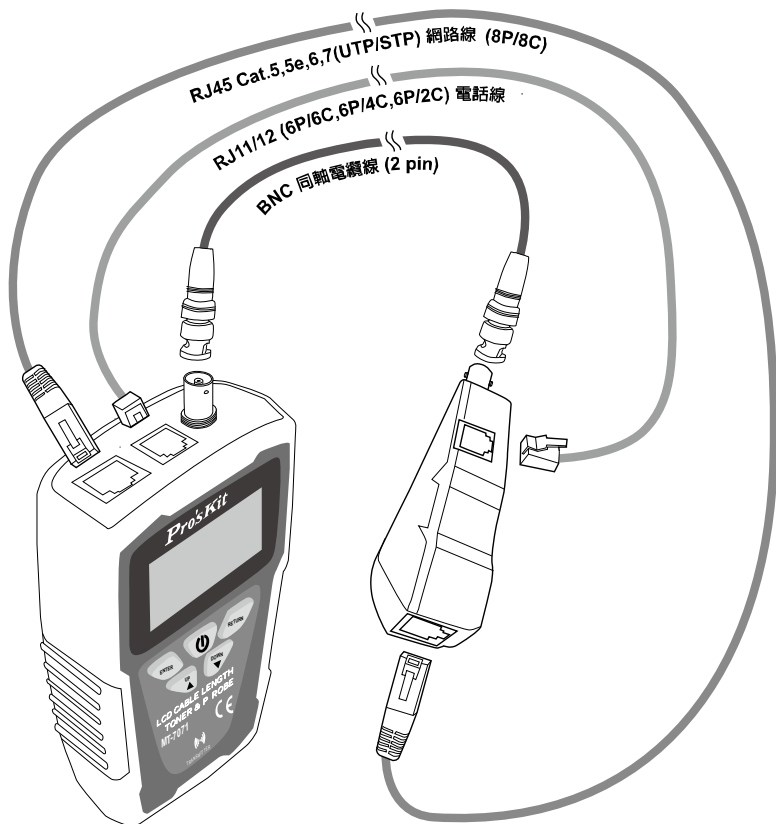
- 進行線對測試時，應注意選擇「1對1」個遠端器或「1對8」個遠端器，兩種遠端器不可混用，否則會產生錯誤的顯示。且適用於最少2股(含)以上的電纜線！
- 進行線對測試時，網路線最短需大於1米(3英呎/1碼)，其他電纜線需大於1.25米(4英呎/1.35碼)以上。且最長610米(2,000英呎/666碼)。
- 進行線對測試時，電纜線的中間不可有任何電路、設備、轉接器，否則將嚴重影響測量的準確性。
- 進行線對測試時，如因網路線或電話線的故障，同時包含短路、斷路、錯接、交叉...等多種故障，本測試器測試結果優先顯示「短路」！請依測試結果的指示，逐一排除故障後，再測試！

1對1遠端器-線對測試



注意：

- 使用1對1遠端器進行線對測試，可以顯示屏蔽或非屏蔽線，不會顯示遠端器的ID#號碼，遠端器無蜂鳴器提示。
 - 搭配1對1遠端器，進行RJ11/RJ12電話線6P/6C、6P/4C、6P/2C線對測試，通路狀態如(圖四-1)。
1. 如(圖三)所示，將MT-7071 LCD音頻線長產生器 與被測電纜線確實接妥。
 2. 參閱「**18.操作流程圖 B.(類型：)**」，依照指示操作：選擇正確的...「**雙絞網路線/六類網路線/電話線/同軸電纜線**」。
 3. 參閱「**18.操作流程圖 C.(線對測試)**」，依照指示操作：進行線對測試。
 4. 1對1遠端器的線對測試，結果顯示如下(圖四-2)：




(圖三) 線對表(Cable Map)測試

	電話線 (6P/6C)	電話線 (6P/4C)	電話線 (6P/2C)
通路	連接狀態：遠程 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	連接狀態：遠程 M: X 2 3 4 5 X R: X 2 3 4 5 X	連接狀態：遠程 M: X X 3 4 X X R: X X 3 4 X X

(圖四-1) 電話線 6P/6C、6P/4C、6P/2C

1 對 1 遠端器-線對測試通路狀態

	RJ45 網路線(8+1 pin) 1~8、G	六類網路線(8+1 pin) 1~8、G	電話線(6P/6C) 1~6	同軸電話線(2 pin) 1、G
通路	連接狀態：遠程 M: 1 2 3 4 5 6 7 8 G R: 1 2 3 4 5 6 7 8 G	連接狀態：遠程 M: 1 2 3 4 5 6 7 8 G R: 1 2 3 4 5 6 7 8 G	連接狀態：遠程 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	連接狀態：遠程 M: 1 G R: 1 G
3 斷路	連接狀態：遠程 M: 1 2 X 4 5 6 7 8 G R: 1 2 X 4 5 6 7 8 G	連接狀態：遠程 M: 1 2 X 4 5 6 7 8 G R: 1 2 X 4 5 6 7 8 G	連接狀態：遠程 M: 1 2 X 4 5 6 R: 1 2 X 4 5 6	1或G 斷路  線纜開路或者線纜過短!
3、4 交叉	連接狀態：遠程 M: 1 2 3 4 5 6 7 8 G X R: 1 2 3 4 5 6 7 8 G	連接狀態：遠程 M: 1 2 3 4 5 6 7 8 G X R: 1 2 3 4 5 6 7 8 G	3、4 交叉 連接狀態：遠程 M: 1 2 3 4 5 6 X R: 1 2 3 4 5 6	
3、4 交叉 5、6 斷路	連接狀態：遠程 M: 1 2 3 4 X X 7 8 G X R: 1 2 3 4 X X 7 8 G	連接狀態：遠程 M: 1 2 3 4 X X 7 8 G X R: 1 2 3 4 X X 7 8 G	3、4 交叉 5、6 斷路 連接狀態：遠程 M: 1 2 3 4 X X X R: 1 2 3 4 X X	
3、4 短路	短路訊息： 1 2 3 4 5 6 7 8 G 3、4 短路	短路訊息： 1 2 3 4 5 6 7 8 G 3、4 短路	3、4 短路 短路訊息： 1 2 3 4 5 6 3、4 短路	短路 短路訊息： 1 G 短路

(圖四-2) 1對1遠端器-線對測試結果指示

1對8遠端器-線對測試



注意：

- 使用1對8遠端器進行線對測試，可以顯示每個遠端器的ID #1~#8號碼，不會顯示屏蔽或非屏蔽線，測試遠端有蜂鳴聲音提示。
 - 1對8遠端器採用1對線(2條線)的方式設計，網路線的對線為：#1pin & #2pin、#3pin & #6pin、#4pin & #5pin、#7pin & #8pin，電話線的對線為：#1pin & #6pin、#2pin & #5pin、#3pin & #4pin。使用1對8遠端器進行網路線的線序/故障測試，當#1pin斷路時，同時#2pin顯示斷路；電話線#1pin斷路時，同時#6pin顯示斷路。如需測得更詳細的每一單pin線序/故障結果，建議改用「1對1遠端器-線對測試」，請參閱「1對1遠端器-線對測試」。
 - 使用1對8遠端器進行線對測試，如果LCD顯示#3pin & #6pin、#4pin & #5pin，這2對線交互閃爍時，表示#3pin & #6pin、#4pin & #5pin存在串繞(不符合EIA/TIA568A/B接線標準)或被測得跳接線過短。
 - 搭配1對8遠端器，進行RJ11/RJ12電話線6P/6C、6P/4C、6P/2C線序/故障測試，通路狀態如(圖五-1)。
- 如(圖三)所示，將MT-7071 LCD音頻線長產生器 與被測電纜線確實接妥。
 - 參閱「18.操作流程圖 B.(類型：)」，依照指示操作：選擇正確的...「雙絞網路線/六類網路線/電話線/同軸電纜線」。
 - 參閱「18.操作流程圖 C.(線對測試)」，依照指示操作：進行線對測試。
 - 1對8遠端器的線對測試，假設使用ID#6遠端器，進行網路線、電話線








注意：

- 使用1對8遠端器進行線對測試，網路線的 #7或#8其中任一pin斷路、電話線的#1或#6其中任一pin斷路、電話線6P/4C、電話線6P/2C、同軸電纜線測試時，無聲音提示。

	電話線 (6P/6C)	電話線(6P/4C)	電話線(6P/2C)
通路	連接狀態：遠程6	連接狀態：遠程6	連接狀態：遠程6
	M: 1 2 3 4 5 6	M: X 2 3 4 5 X	M: X X 3 4 X X
	R: 1 2 3 4 5 6	R: X 2 3 4 5 X	R: X X 3 4 X X

(圖五-1) 電話線 6P/6C、6P/4C、6P/2C

1 對 8 遠端器-線對測試通路狀態

	RJ45 網路線(8 pin) 1~8	六類網路線(8 pin) 1~8	電話線(6P/6C) 1~6	同軸電話線(2 pin) 1、G
通路	連接狀態：遠程6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	連接狀態：遠程6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	連接狀態：遠程6 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	連接狀態：遠程6 M: 1 G R: 1 G
3 斷路	連接狀態：遠程6 M: 1 2 X 4 5 X 7 8 R: 1 2 X 4 5 X 7 8	連接狀態：遠程6 M: 1 2 X 4 5 X 7 8 R: 1 2 X 4 5 X 7 8	連接狀態：遠程6 M: 1 2 X X 5 6 R: 1 2 X X 5 6	1 或 G 斷路  線纜開路或者線纜過短！
	連接狀態：遠程6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	連接狀態：遠程6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	連接狀態：遠程6 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	
3、4 交叉	連接狀態：遠程6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	連接狀態：遠程6 M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8	連接狀態：遠程6 M: 1 2 3 4 5 6 R: 1 2 3 4 5 6	
	連接狀態：遠程6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	連接狀態：遠程6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	連接狀態：遠程6 M: X X 3 4 X X R: X X 3 4 X X	
3、4 交叉 5、6 斷路	連接狀態：遠程6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	連接狀態：遠程6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	連接狀態：遠程6 M: X X 3 4 X X R: X X 3 4 X X	
	連接狀態：遠程6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	連接狀態：遠程6 M: 1 2 X X X X 7 8 R: 1 2 X X X X 7 8	連接狀態：遠程6 M: X X 3 4 X X R: X X 3 4 X X	
3、4 短路	短路訊息： 1 2 3 4 5 6 7 8 	短路訊息： 1 2 3 4 5 6 7 8 	短路訊息： 1 2 3 4 5 6 	短路訊息： 1 G 

(圖五-2) 1對8遠端器-線對測試結果指示

11 · 長度測試、長度校準與參數調出：



注意：

- 進行長度測試或長度校準時，需在開路的狀態下進行，無需連接任何設備或終端器。且適用於最少2股(含)以上的平行電纜線，單股線無法使用！校準的標準線：10~50米(33~164英呎/11~55碼)。
- 進行長度測試時，只能測試開路點的長度，不能檢測通路、短路和交叉。最短需大於2米 (6.8英呎/2.2碼)。且最長1,200米(4,000英呎/1,300碼)。
- 進行長度測試或長度校準時，為了確保準確度，需在環境溫度： $23\pm 5^{\circ}\text{C}$ 、相對濕度：20%~75%時進行。在此環境溫度、濕度以外，誤差值可能變大。
- 市面上的網路線、電話線、同軸電纜線，因廠牌、規格眾多，請儘可能先進行長度校準後，儲存參數，再調出參數使用，以確保測量的準確性。未經校準，直接測量開路的長度距離，有可能因為廠牌、規格的阻抗誤差，產生較大的長度距離誤差！MT-7071 LCD音頻線長產生器 默認的電纜線為：雙絞線(Cat.5e)、六類線(Cat 6)、同軸電纜線(RG59)、電話線(HYV4*1/0.4BC)。
- 如從外觀上無法辨識標準線與被測電纜線是否相同規格時，可藉由高精度電阻錶，在相同長度下，量測阻抗是否相同，即可判斷！
- 進行開路點長度測試時，電纜線的中間不可有任何電路、設備、轉接器，否則將嚴重影響測量的準確性。
- 進行開路點長度測試時，網路線以#3pin為基準，電話線以#4pin為基準，同軸電纜線以G pin為基準。若測量開路點長度顯示數據有差異，請參考基準線長為準。若基準線開路，請更改接線順序，使基準線長等於總線長，再進行開路點長度測試。
- 進行開路點長度測試時，如果被測電纜線有短路狀態，LCD顯示「短路」信息，需先排除故障後，再進行長度測試。

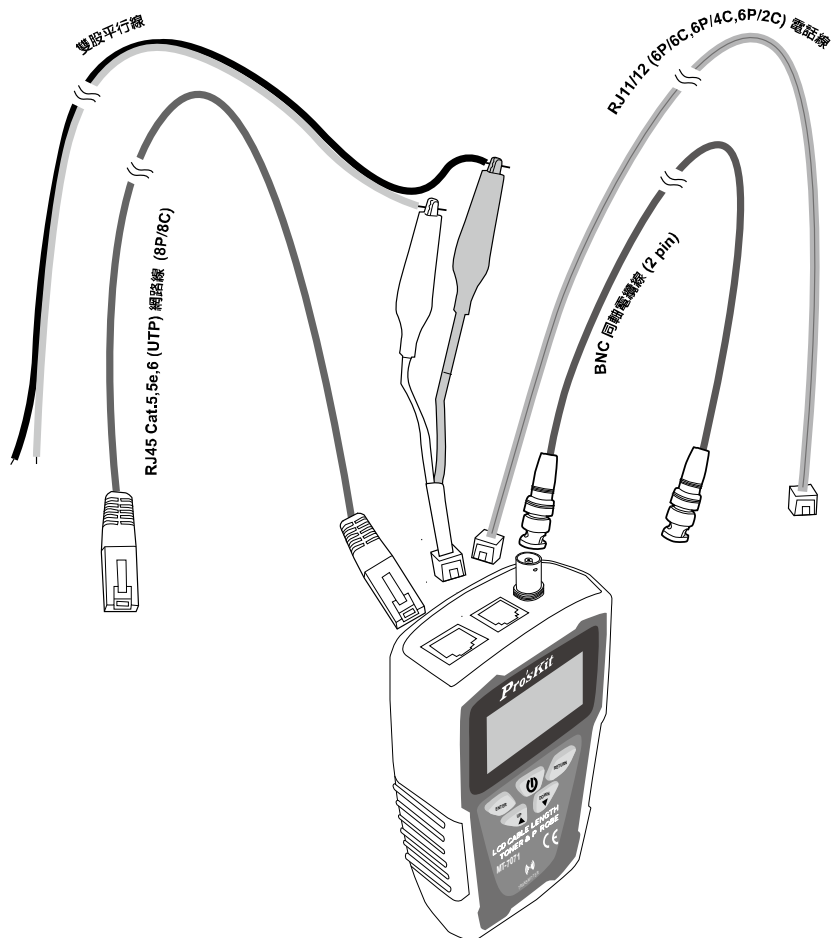
長度校準

1. 準備一條10~50米(33~164英呎/11~55碼)的標準線，先測量實際長度。
2. 再如(圖六)所示，將MT-7071 LCD音頻線長產生器 與標準線確實接妥。
3. 如需改變長度單位：「米/英呎/碼」，請參閱「18.操作流程圖 F.(單位：)」，依照指示操作--選擇長度單位。
4. 參閱「18.操作流程圖 B.(類型：)」，依照指示操作：選擇正確的...「雙絞網路線/六類網路線/電話線/同軸電纜線」，進行下一步校準作業。
5. 參閱「18.操作流程圖 G.(長度校準)」，依照指示操作：將測量後的實際長度，經調整校準後，紀錄於「校準1~校準7」中。



注意：校準儲存後，應調出該參數測試標準線長度，進行確認！若有偏

差，請重新再校準，並注意接線是否確實接妥。



(圖六) 長度校準/測量

校準參數調出

1. 參閱「18.操作流程圖 H. (參數調出)」，依照指示操作：選擇正確的記錄位址...「校準1~校準7」中，將資料載入MT-7071 LCD音頻線長產生器 中。

長度測量：

1. 請先確認被測電纜線，處於開路狀態！
2. 請依照上述的方式，進行長度校準和校準參數調出後，再進行下列「長度測量」的步驟...



注意：未經校準，直接測量開路的長度距離，有可能因為廠牌、規格的

不同，產生較大的長度距離誤差！

- 3. 再如(圖六)所示，將MT-7071 LCD音頻線長產生器 與被測電纜線確實接妥。
- 4. 如需改變長度單位：「米/英呎/碼」，請參閱「18.操作流程圖 F.(單位：)」，依照指示操作--選擇長度單位。
- 5. 參閱「18.操作流程圖 B.(類型：)」，依照指示操作：選擇正確的...「雙絞網路線/六類網路線/電話線/同軸電纜線」，進行下一步校準作業。
- 6. 參閱「18.操作流程圖 H.(參數調出)」，依照指示操作：將儲存的紀錄從「校準1~校準7」中調出載入。
- 7. 參閱「18.操作流程圖 D.(長度測試)」，依照指示操作：進行長度測試。
- 8. 等長開路，長度測試結果顯示如下(圖七)，1 pin (含)以上不等長開路，長度測試結果僅供參考用。

等長開路，長度測試：被測的電纜線全長 168.5 米，當每一股的線芯均在 168.5 米等長處開路，長度測試結果如下：

RJ-45 網路線 (8 pin) 8 pin 等長開路		六類網路線 (8 pin) 8 pin 等長開路		電話線 (6 pin) 6 pin 等長開路	
1 開 路	168.5m	1 開 路	168.5m	1 開 路	168.5m
2 開 路	168.5m	2 開 路	168.5m	2 開 路	168.5m
3 開 路	168.5m	3 開 路	168.5m	3 開 路	168.5m
4 開 路	168.5m	4 開 路	168.5m	4 開 路	168.5m
5 開 路	168.5m	5 開 路	168.5m	5 開 路	168.5m
6 開 路	168.5m	6 開 路	168.5m	6 開 路	168.5m
7 開 路	168.5m	7 開 路	168.5m		
8 開 路	168.5m	8 開 路	168.5m		
同軸電纜線 (2 pin) 2 pin 等長開路		雙股電線 (2 pin) 2 pin 等長開路			
1 開 路	168.5m	1 開 路	168.5m		
2 開 路	168.5m	2 開 路	168.5m		

(圖七) 等長開路，長度測試結果顯示

12 · 使用 580/1160 Hz 音頻信號查找、分離電線：

使用MT-7071 LCD音頻線長查線器 的580/1160 Hz查找線路時，能定位、分離、查找雙絞線(UTP、STP、Cat 5e、Cat 6)、電話線(Cat 3)、同軸電纜線，搭配跳接線可以測試RJ45/RJ11插座的接線，搭配鱷魚夾連接線，可測試一般電線和各種接線板。



注意

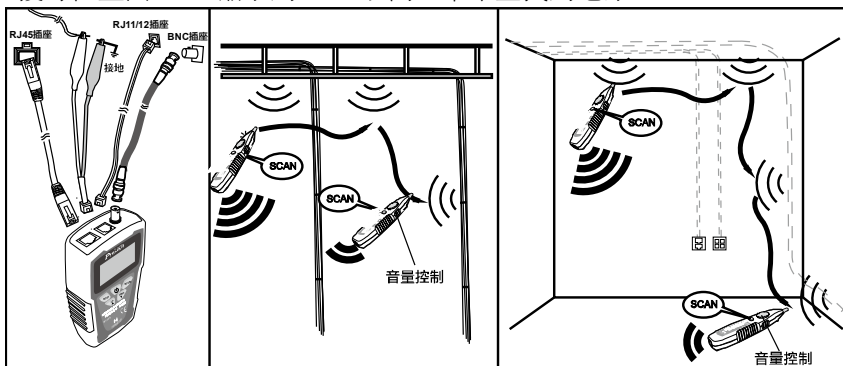
- 使用MT-7071 LCD音頻線長查線器 的580/1160Hz查找線路時，應儘量遠離或關閉干擾源。如.具有變壓器、電感、線圈、馬達的電器設備等；如果接近干擾源，而MT-7071接收器產生接收的雜訊聲音，屬於正常狀態；但如果影響操作判斷時，應予遠離或關閉干擾源。
- 使用MT-7071 LCD音頻線長查線器查找線路時，直接接入工作中的電話交換機或網路HUB進行查線，有可能因有電話交換機或網路HUB的信號與本儀器所發射的音頻信號有衝突，造成無法查線的情況，必要時可關閉交換機進行查線。
- MT-7071 LCD音頻線長查線器 的580/1160Hz音頻信號，通過電路機板或分岔線路或整捆電線(絞線)時，會有相互感應傳遞和信號強度的衰減的現象。且無法穿透金屬配線管。
- 在搜索MT-7071 LCD音頻線長產生器 的信號時，沒有必要將MT-7071接收器的探頭觸及線纜或接線板。
- 在使用MT-7071 LCD音頻線長查線器 前，應確實檢查MT-7071音頻產生器的黑色鱷魚夾，確實接地妥善。

查找電線

當你需要查找電線佈線位置或查找電線斷路位置時，請依照下列步驟進行：

1. 如(圖八)所示，將MT-7071 LCD音頻線長產生器 與被測電纜線確實接妥。單股線或雙股平行線，請選擇「電話線」後，在RJ11插座上，接妥鱷魚夾轉接線後，與被測電纜線確實接妥。
2. 再參閱「18.操作流程圖 B.(類型：)」，依照指示操作：選擇正確的...「雙絞網路線/六類網路線/電話線/同軸電纜線」。
3. 再請參閱「18.操作流程圖 E.」，依照指示操作：進行查找電線。
4. 如(圖八)所示，要接收580/1160 Hz且有聲音輸出，先將MT-7071接收器的「3段功能選擇開關」撥至OFF或LED檔。按下MT-7071接收器的「SCAN」尋線功能鍵時，紅色指示燈亮起，表示尋線測試的功能啟動。當放開「SCAN」尋線功能鍵時，紅色指示燈熄滅後，表示尋線測試的功能關閉。未插上耳機前喇叭有聲音輸出，插上耳機後則喇叭無聲音輸出，聲音由耳機輸出。

5. 使用MT-7071接收器 將音量旋鈕轉到最大，沿著塑膠配線管、走線架、接線板或牆壁，查找佈線線路的大致位置。接近時，MT-7071接收器 的喇叭響起音頻信號聲音，喇叭聲音越大，表示信號越強；同時信號強弱指示燈LED亮紅色，LED指示燈明暗程度會隨信號強度改變，當此指示燈越亮，表示信號越強。
6. 旋轉音量旋鈕，控制音量由大到小，則可以改變查找電線的靈敏度，將搜尋位置由30cm縮小到10cm以內，準確查找到電線。



(圖八) 查找電線

分離電線

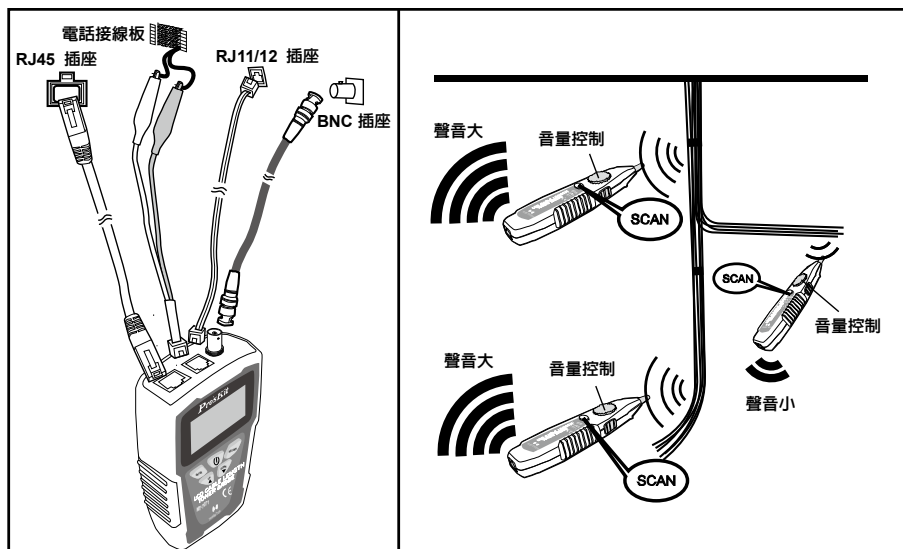
當你需要尋找網綁在一起的電纜其中一條電線，或多芯電纜中的其中一條芯線時，請依照前面查找電線的步驟(1.)到(4.)進行(如圖八)，然後再依照下列步驟(如圖九)繼續進行：

7. 將電纜線分開約30~45cm長，採用二分法，將電纜線的芯線概略分為左右各一半，使用MT-7071接收器尋找目標芯線的位置，喇叭聲音較大和LED燈比較亮(信號較強)的一邊，代表其中包含了你所要尋找的目標芯線。
8. 旋轉音量旋鈕，控制音量由大到小，則可以改變查找電線的靈敏度，將搜尋位置由30cm縮小到10cm以內，準確找到目標芯線的位置。
9. 重複前面二分法的(5.)、(6.)步驟，則可輕易找到目標芯線。



注意

如果不能正確分辨兩導線電纜上的音頻信號，可能電纜線已短路或斷路。請使用連通測試(圖十一)，檢查接電纜線是否短路或斷路。



(圖九) 分離電線

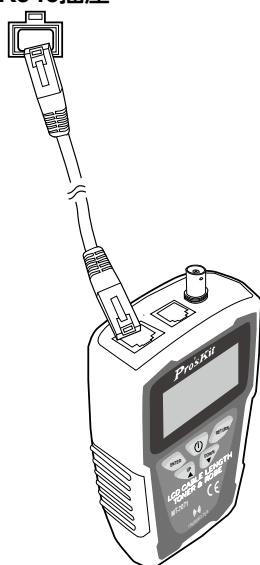
13 · 工作中的網路檢測：



注意：

- 此測試方法只能測試網線路連通或斷路，不能檢測交叉或短路。
 - 工作中的網路測試，部份廠牌的HUB，因電路設計的不同，僅會顯示1、2、3、6短路。
1. 依(圖十)所示，將MT-7071 LCD音頻線長產生器 妥善連接RJ45(8P/8C)網路線或插座、另一端連接在正在工作的網路交換機上。
 2. 參閱「18.操作流程圖 B.(類型：)」，依照指示操作：選擇正確的...「雙絞網路線/六類網路線」。
 3. 參閱「18.操作流程圖 C.(線對測試)」，依照指示操作：進行線對測試。
 4. 線對測試結果，顯示如下(圖十)：
 5. 當MT-7071 LCD音頻線長產生器 上的結果顯示「短路訊息」和「1~8、G」短路時，表示網路線1~8、G全部連通，如結果顯示有任何pin未連通，代表線路故障。

RJ45插座



短 路 訊 息：

1 2 3 4 5 6 7 8 G

代表：(屏蔽線) 連通

短 路 訊 息：

1 2 3 4 5 6 7 8 G

代表：(屏蔽線) 故障

短 路 訊 息：

1 2 3 4 5 6 7 8

代表：(非屏蔽線) 連通

短 路 訊 息：

1 2 3 4 5 6 7 8

代表：(非屏蔽線) 故障

(圖十) 接入工作中的網路檢測

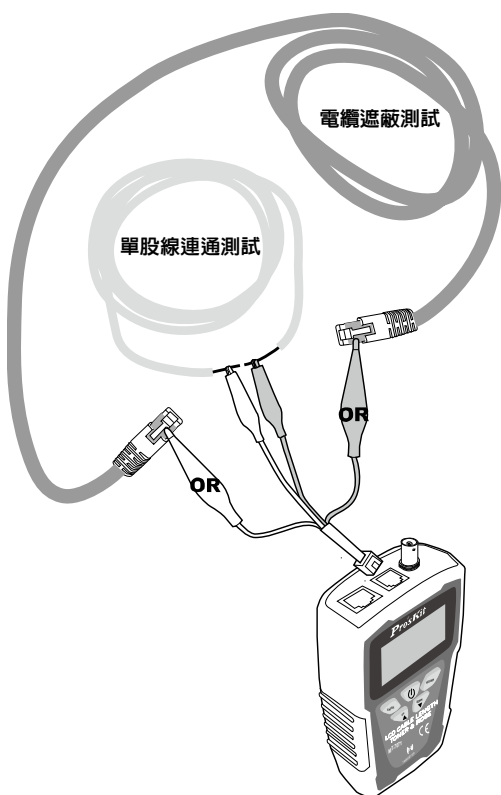
14 · 屏蔽網路線和單股線連通測試：



警告：測試前，應先確認並關閉電源。

當你需要確認網路線是否有屏蔽或電纜線的連通是否有接觸不良時，請依照下列步驟進行：

1. 依(圖十一)所示，將MT-7071 LCD音頻線長產生器 在RJ11插座上，接妥鱷魚夾轉接線後，與被測電纜線確實接妥。
2. 參閱「18.操作流程圖 B.(類型：)」，依照指示操作：選擇正確的...「電話線」。
3. 參閱「18.操作流程圖 C.(線對測試)」，依照指示操作：進行線對測試。
4. 線對測試結果，顯示如下(圖十一)：
5. 當MT-7071 LCD音頻線長產生器上的結果顯示「短路訊息」和「3、4」短路時，表示連通(阻抗 $<500\pm100\Omega$)，結果顯示「開路」，表示斷路或是遮蔽不良和連通不良(阻抗 $>500\pm100\Omega$)。



線纜開路或者
線纜過短！

代表：斷路或非屏蔽線，
阻抗 $>500\Omega \pm 100\Omega$

短路訊息：

1 2 3 4 5 6
└─┘

代表：連通或屏蔽線，
阻抗 $<500\Omega \pm 100\Omega$

(圖十一) 屏蔽線 和 單股線連通測試

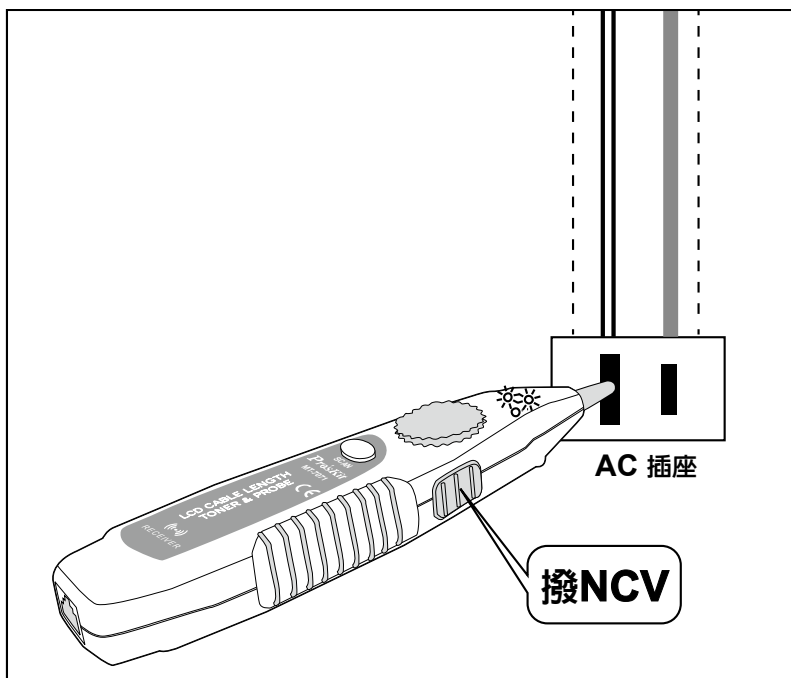
15 · NCV 非接觸驗電：



注意：

此項測試功能可以被廣泛應用在定位、分離、導通、查找、線對表(Cable Map)測試前，確認被測線路中是否有交流電壓？除可確保人身安全.避免觸電外，也可以保護MT-7071 LCD音頻線長查線器，不被交流電壓損壞！

1. 如(圖十二)所示，將3段功能選擇開關(非接觸驗電NCV、關機OFF、工作照明LED)，撥切至「NCV」檔位後，電源指示燈亮起，表示「NCV」非接觸驗電測試的功能啟動。
2. 將MT-7071接收器 的探頭靠近被測物，進行非接觸驗電(NCV)測試，當非接觸驗電(NCV)指示燈快速閃爍、同時蜂鳴警報時，代表被測物具有90~1000V交流電壓。當指示燈不亮、無蜂鳴警報時，代表被測物的交流電壓低於90V或是沒有交流電壓。



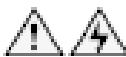
(圖十二) NCV 非接觸驗電測試

16 · 電池狀態與電池更換：




小心

- 為避免測試結果不可靠，一旦出現電池不足的指示，請立即更換電池。

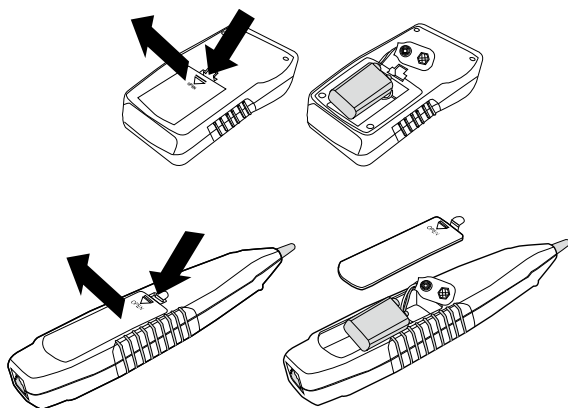


警告

- 為避免可能發生的電擊或人體傷害，更換電池前，應關機並斷開所有測試導線的連接。

當MT-7071 LCD音頻線長產生器的電池低電壓符號「」閃爍時，代表電壓已低於7.0V左右，為了確保測試器處於最佳工作狀態和提供準確的測試，應立即更換新電池。更換電池請依下列步驟進行：(如圖十三)

1. 關機，並斷開所有測試導線的連接。
2. 如(圖十三)所示，輕輕打開電池盒蓋，取出電池，並輕力取下電池扣。
3. 換上新的 9V 電池(6FF22)，輕力扣上電池扣，放入電池，蓋上電池盒蓋。



(圖十三) 電池更換

17 · 維護與簡易故障排除：

維護：



警告

- 為避免可能發生的電擊或人體傷害，維護前，應關機並斷開所有測試導線的連接。



小心

- 為避免損壞機殼，不要使用溶劑或磨蝕性去污粉。

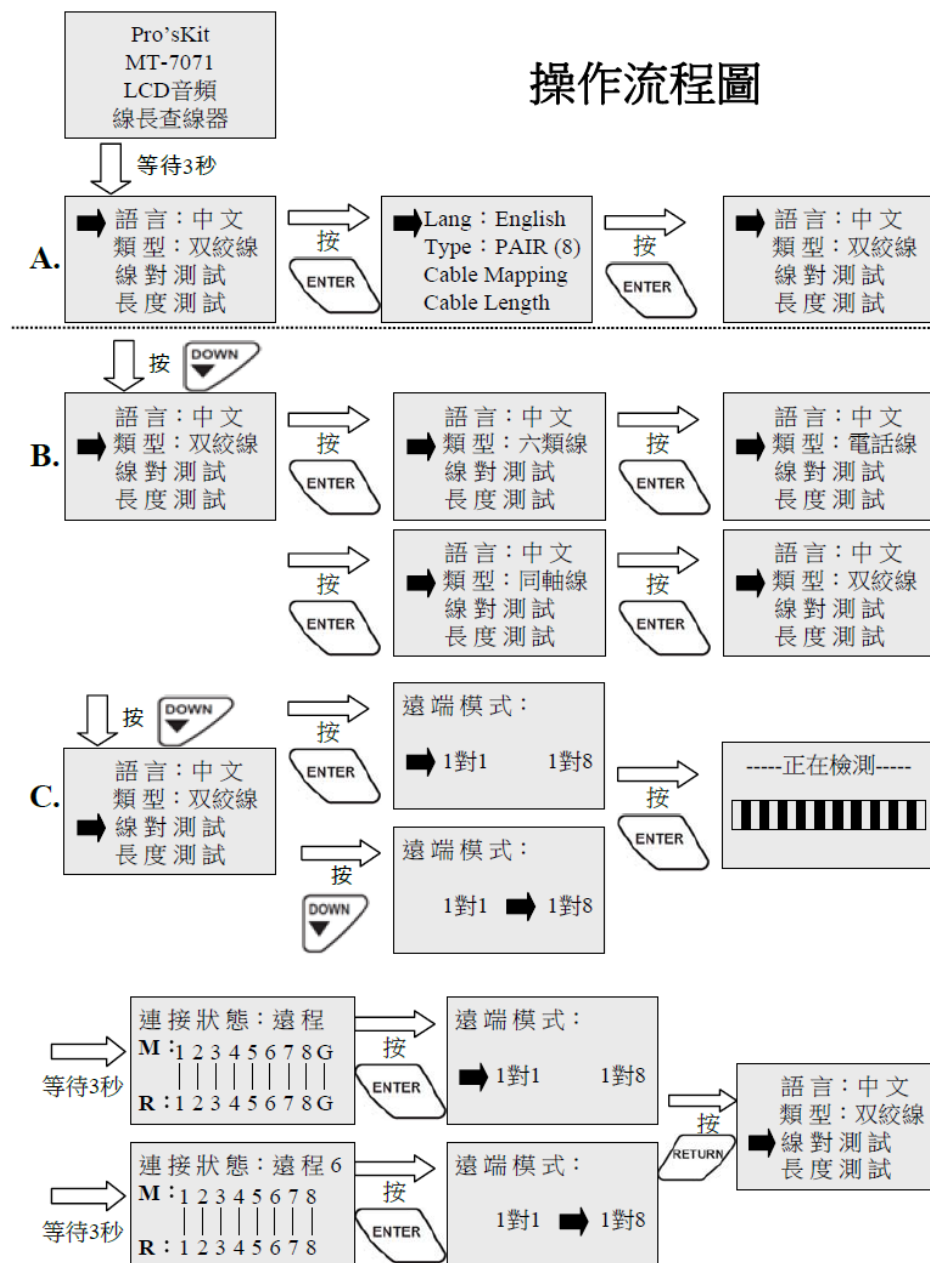
用柔性軟布沾水後擰乾、或柔性軟布沾柔性皂液後擰乾，輕輕的擦拭機殼。

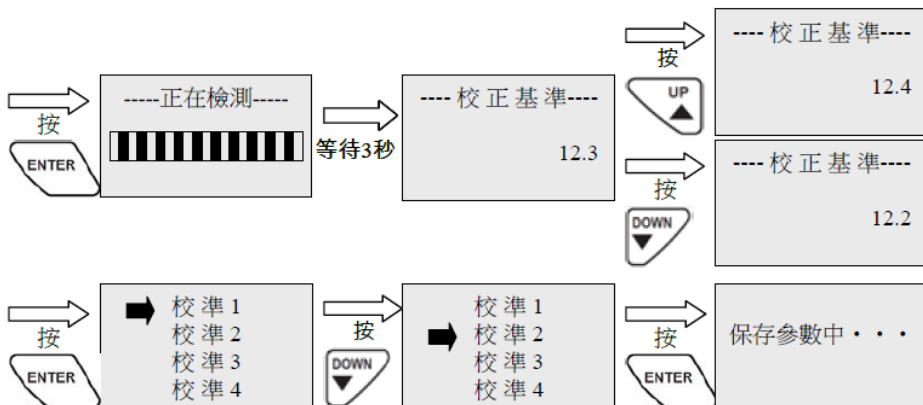
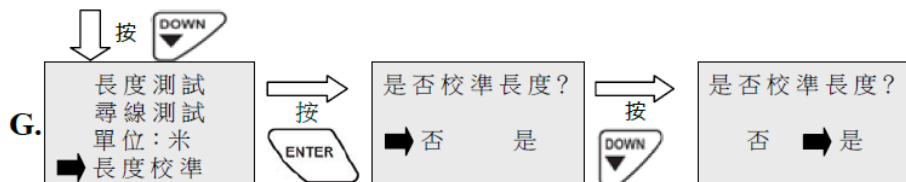
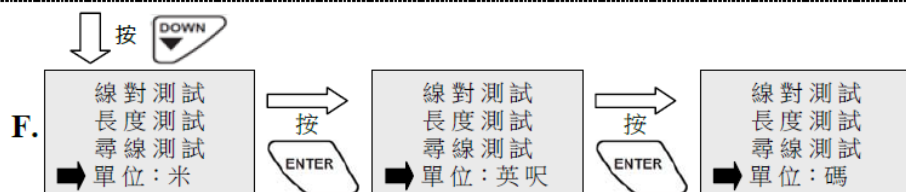
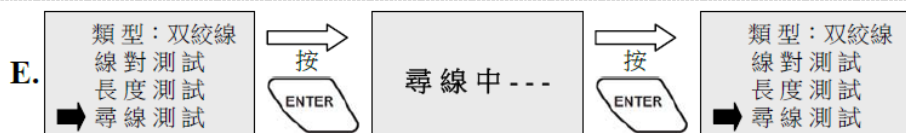
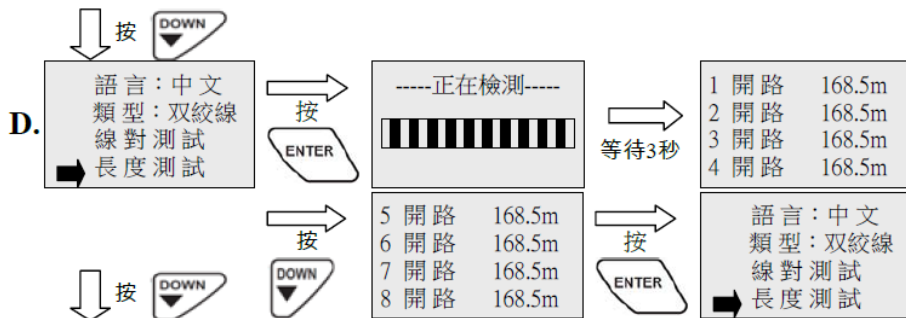
簡易故障排除：

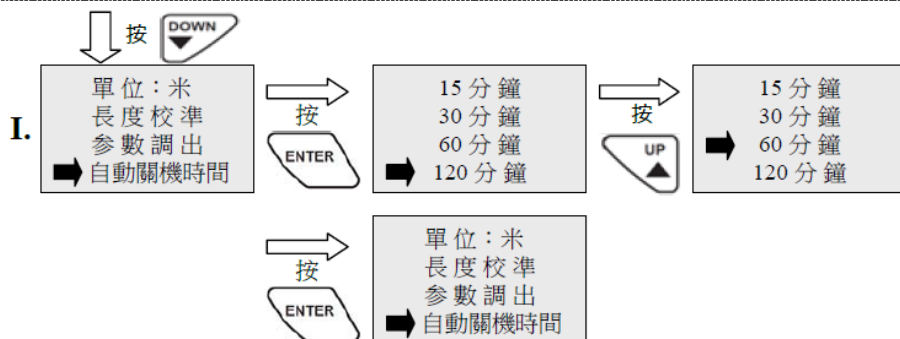
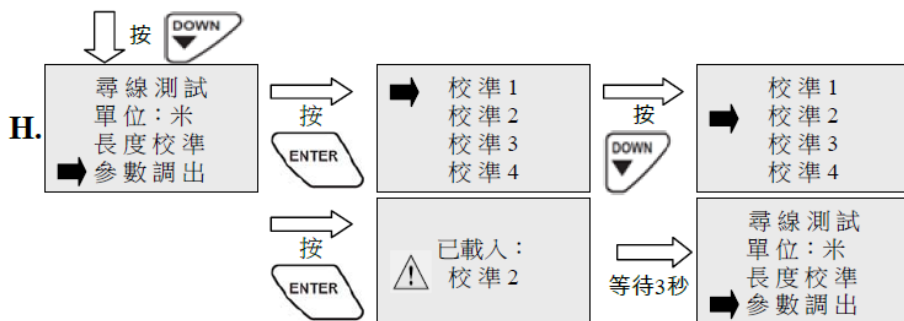
故障	排除
接收器無法探測 LCD 音頻線長產生器的信號	1. 電池電力不足：檢查音頻產生器和接收器的電池，如電壓低於 7.0V 左右，需更換電池。
	2. 接收器檔位不正確：請撥至 OFF 或 LED 檔，NCV 檔不能探測 SCAN 信號。
	3. 儀器故障：返回經銷商維修。
活電下測試電話局線，接收器無法探測 LCD 音頻線長產生器的信號	可能是電話局線信號頻率，與本音頻產生器的信號衝突，請關閉電話交換機。
線序/故障測試結果顯示不正確	LCD 螢幕損壞：返回經銷商維修
	網路線或電話線接觸不良：請將網路線或電話線，重新插入 RJ45 或 RJ11 個別獨立插座。
其它功能異常	儀器故障：返回經銷商維修

18 · 操作流程圖：

操作流程圖







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